This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

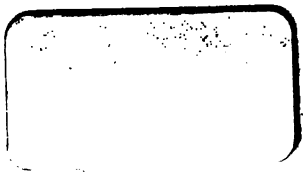
+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

NYPL RESEARCH LIBRARIES
3 3433 06905901 6



Engineers

REPORT

OF THE

BOARD OF PUBLIC WORKS

TO THE

GENERAL ASSEMBLY OF LOUISIANA,

FROM OCTOBER 29 TO JANUARY 18, 1869.

1868

NEW ORLEANS:
A. L. LEE, STATE PRINTER
1869

114401

NOTE OF TRANSMITTAL.

STATE OF LOUISIANA, OFFICE BOARD OF PUBLIC WORKS,
New Orleans, La., January 14, 1869.

Hon. H. C. WARMOTH, Governor of the State of Louisiana:

GOVERNOR — In compliance with section eight of Act No. 72 of the General Assembly of 1868, I have the honor to forward through your Excellency, to the General Assembly of the State of Louisiana, now in session, a Report of the Board of Public Works, from October 29, 1868, to January 13, 1869.

I am, very respectfully, your obedient servant,

(Signed) MARTIN FLOOD,
President Board of Public Works.

REPORT.

STATE OF LOUISIANA, OFFICE BOARD OF PUBLIC WORKS,
New Orleans, La., January 13, 1869.

To the Honorable Senate and House of Representatives
of the General Assembly of the State of Louisiana:

The Board of Public Works, consisting of five Commissioners, was established by an Act passed by the General Assembly of the State of Louisiana, at the first session of the first Legislature, and approved September 10, 1868.

His Excellency, H. C. Warmoth, Governor of the State of Louisiana, nominated the following named gentlemen to serve as Commissioners: S. W. Sawyer, for the First District; J. C. Van Wickle, for the Second District; Geo. S. Cleveland, for the Third District; Martin Flood, for the Fourth District, and George C. Benham, for the Fifth District.

The appointment of all and each of the above named persons being duly confirmed by the Honorable Senate, they individually filed the required bonds and received their commissions as members of the Board.

On the twenty-ninth day of October, 1868, the Board met for organization; Martin Flood was elected permanent President, and R. D. Mitchell appointed Secretary. On the day following, Messrs. M. Jeff. Thompson and John V. Van Pelt were appointed Engineers, but not assigned to any particular districts. Economy, consistent with the interests of the State, was the pre-eminent principles to be considered in all matters of expense; therefore the full number of engineers, as provided for by law, have not been selected. The two now appointed are efficient and energetic, and have been found thus far to meet all requirements of the Board. Outside work, in different sections of the State, demanded the exclusive attention of the engineers, hence it was deemed essential to employ a person in the office to prepare plans of levees and complete unfinished maps of the levees of the Mississippi river found in the office formerly occupied by the Board of Levee Commissioners. For this purpose Colonel A. F. Wrotnowski was appointed draftsman. This appointment has proved a valuable acquisition to the Board.

Upon the organization of the Board there were no tangil to operate with. To partially meet this emergency, your l bodies wisely provided a limited amount of funds, by au the sale of the undisposed levee bonds. There could on proximate estimate made of the amount of funds that wou the disposal of the Board, consequently the matter of re levees became a question of very serious importance. Afte deliberation it was determinod to adopt such measures a tend to produce the greatest good to the greatest number. V end in view, a thorough inspection was made by the Boar engineers, of all the levees on the Mississippi River, from treme Northern part of the State down to the Gulf. The c of the levees at that time are fully described in the annexe of the engineers made to the Board.

The first action on the part of the Board was to invite] for the constructing and repairing of such levees as woul the largest amount of alluvial land and the most valuable of the State from overflow. The accompanying table, N show the levees now under contract and in course of con and repair, with the number of cubic yards of earthwork as accurately as can be ascertained, with the price per c for earthwork, and per thousand feet for lumber, and amount of cost. In awarding levees the Board require and every instance bonds to be given to the estimated a the work to be done with fifty per cent. additional and t cent. of each and every monthly estimate to be retained completion of the work to the satisfaction of the Board; s to be secured by at least two responsible persons, reside State. An approximate estimate only could be made o of these levees and compared with an assumed amount that would be available by the Board. It became appar vast amount of work must be performed by private ent subject much of the low lands to inundation. To avoi possible the apprehended injury that would result from in broken levees, and to encourage individuals to aid others ing themselves, the following resolution was adopted Nov 1868, and made public through the press:

WHEREAS, The amount of means that will be available to of Public Works will not be sufficient to pay for all the w

meat is absolutely needed to close crevasses, that will not only
e country from overflow but also save the washing away of
isting levees, that it will be understood that whenever a
ar or planters may agree in writing to furnish the means to
or repair any levee, that the Board will have the same examined
located by its engineers, and constructed, if necessary at the
planters' expense; and that the Board will join in a petition
recommendation to the legislature at its next session, to refund
id planters such amounts as may have been properly expended.
compliance with the provisions of the foregoing resolution,
s are now being built, a further report of which will be made as
as more complete information can be compiled.
e price for building the levees already under contract, was
l upon cash payments, and the same to be made on estimates at
efore the tenth of each month. Hence, there are on some of
payments now due. It is expected that ample funds will be
d to the credit of the Board to meet these demands from time
ne. It will not be improper to refer here to the probability of
being but little or no surplus funds after paying for the work
ly let, to meet the cost of building one or more levees, com-
ed prior to the organization of this Board and when no Levee
l existed, which has been indorsed by this Board, as well to
y the ordinary contingent expenses of the office.
will be perceived that the levees that are now being worked,
one exception, are of earth embankment exclusively. The ex-
on is Grand Levee, in the parish of Pointe Coupee, about
undred and seventy-five miles above the city of New Orleans.
is a work of great magnitude and will require a large outlay.
reluctance was at first expressed in making an attempt to
this stupendous crevasse. From the fact that it had been
l and broken twice within the last four years past, gave rise to
ts about the possibility of constructing a bank that would re-
he pressure of the water at this point of the river; that too
a time intervened before the usual spring rise to complete a
anent work, and that the amount of means required to finish
work would materially decrease the amount designated for
purposes. These objections were, however, waived, in consid-
on of the benefits that would result to nine parishes in the
; of the crevasse being closed. Believing that to close it was
ble, on the seventh day of December, 1868, the contract was

awarded to P. J. Kennedy, who immediately commence
Satisfactory progress has thus far been made, with every
it being a success.

The expedient of using lumber for facing and bi
adopted, with the view of protecting the earth from the
wash of the water, thereby decreasing the quantity of
and constructing the levee at a less cost than could be
earth alone.

The fact that an immense amount of work is required
the alluvial lands of the State from inundation, must be
edged by every citizen. It appears scarcely necessary t
the subject here, but as some mention may be requisite,
embody the following extract from the report of the late
Levee Commissioners, which is particularly applicable at

"In the present condition of the levees, it is the opini
Board, that it will require annually an expenditure of or
of dollars for their repair and maintenance, and then wit
tainty that the country will be protected. The truth is,
entire line of levees requires to be rebuilt and of increased
height. Their present deficiency in both respects men
well as their too close proximity to the bank of the river
patent to the most casual observer in traveling on the ri
the height of the flood. There will be no absolute secu
alluvial lands until this is done, and as the cost of th
greater than the State can afford, the National governmen
petitioned to come to our aid."

Table No. 2, will show an approximate amount of levee
quired in the State for the ensuing year. About six
(6,000,000) of cubic yards are necessary on the Mississ
alone. In addition to this must be considered the Red,
Black, Atchafalaya, Lafourche, Teche, and other rivers ar
in the interior of the State, of which time has not permit
examination and survey. It will, however, be safe to est
necessary work on the latter streams at four millions (4,0(
cubic yards, which will make a total of about ten millions
000) of cubic yards.

In accordance with the requirements of section 7 of A
passed by the General Assembly and approved Septembe
"To Provide for the Improvement of the Navigation of R

sioners in behalf of the State, appointed under said act,
r the work to this board, on the 20th day of November,
he contract entered into between the commissioners and
J. Oliver, and George Alban, on the 10th day of September,
ows that the work was divided into four sections. Upon
pletion of the first section, the sum of fifty thousand dollars
have been paid; for the second section, the sum of forty-two
id dollars; for the third section, the sum of twenty-two
id dollars, and for the fourth section, the sum of twenty-
usand dollars, in the manner prescribed in the act. The
accompanying the turning over of the work states that sec-
o and three were completed, for which the contractors had
l certificates from the engineers, approved by the commis-

The map of the improvement done under said act was
l by the engineer employed by the commissioners, until the
th inst., when it was, with a report of the engineer to the com-
ers, delivered to this office. Therefore the board could
examine or prosecute the work. The water at present being
othing can be done for several months or until the season of
ter.

g to the brief time that the board has been in existence, and
siness of the levees being paramount to other matters, the
ation and surveying of Attakapas canal, as directed by joint
ion No. 119 of the General Assembly of 1868, has been
ied. This estimate will comprise a portion of a report that
made to your honorable bodies at an early day, as we will
casion to present a more minute report relating to some
nt matters referred to herein.

ncluding this report, we would be negligent of an impera-
ty were we to fail to acknowledge the valuable assistance
d the Board by his Excellency Governor Warmoth, in all
ending to the interest of the levees and State.

Respectfully submitted,

(Signed) MARTIN FLOOD, President.
S. W. SAWYER.
J. C. VAN WICKLE.
GEO. S. CLEVELAND.
GEO. C. BENHAM.

TABLE No. 1.

Levees in Course of Construction and Repair, showing to whom Awarded, approximate estimate number of Cubic Yards, Feet of Lumber and Cost.

NAME OF LEVEE.	Parish.	Name of Contractor.	Cubic yards.	Price, cents.	Feet of lumber.	Price per 1000 fe et.	Amount.
Elton	Carroll	John McGinty	26,542	29	.....	.....	7,697 18
Lake Providence	Carroll	J. W. Burke	24,718	29	.....	.....	7,168 22
Morgan	Plaquemines	M. M. Nolan	63,082	27	.....	.....	17,032 14
Fairview	St. Charles	P. J. Kennedy	27,717	34	.....	.....	9,423 78
Red River Landing	Pointe Coupée	P. J. Kennedy	40,000	34	....	.....	13,600 00
Grand	Pointe Coupée	P. J. Kennedy	360,000	52½	1,000,000	$40 00	229,000 00
Bass	Carroll	P. J. Kennedy	100,000	32	.....	.....	32,000 00
Savage	Carroll	P. J. Kennedy	100,000	27½	.....	.....	27,500 00
Duckport	Madison	P. J. Kennedy	16,000	28¾	.....	.....	4,600 00
Gillespie	Tensas	L. Murphy	7,000	33	.....	.....	2 310 00
St. Joseph	Tensas	L. Murphy	5,000	33	.....	.....	1,650 00
Marengo	Concordia	P. J. Kennedy	78,379	45	.....	.....	35,270 55
Glasscock Island	Concordia	Wm. Wright & Co	47,000	33½	.....	.....	15,745 00
Total amount	.....	.....	895,438	....	1,000,000	.....	$402,996 87

REPORT OF CHIEF ENGINEER.

OFFICE OF THE ENGINEERS OF THE BOARD OF PUBLIC WORKS,
New Orleans, La., January 4, 1869.

Hon. MARTIN FLOOD, President of the Board of Public Works, State of Louisiana:

HONORABLE SIR — In compliance with the requirements of the eighth section of the Act of the General Assembly creating the Board of Public Works, I herewith report the transactions in the Engineers' Department since the organization of the board, and give such estimates of the work being or to be done, as it has been possible in so short a time to make.

Upon the organization of your Board on October 29, 1868, there were no levee engineers in the employment of the State. On the thirtieth of October, Mr. John V. Van Pelt and myself were appointed as engineers, but without assignment to districts, and we were immediately placed upon duty, and since have been constantly engaged either in examining the levees or staking out those "let" by your honorable Board, as will fully appear by the various estimates and reports, now in the office of your Secretary.

On the sixth day of November, Mr. Van Pelt and I started with your honorable board on a tour of inspection of the levees, and a detailed statement of the condition of the levees, above Red river, at that time, is embraced in my report of the nineteenth of November, 1868. We have since collected all the information possible, in the time, of the levees on the Mississippi, south of Red river. You will find herewith a table of the approximate number of cubic yards required for each parish. But from want of time, and the constant occupation of staking out the important works, contracted for, the estimates for the work *not let* are not so accurate as I would wish them.

The necessities of the office requiring an assistant engineer and draughtsman, Mr. A. F. Wrotnowski was appointed to this position.

Before mentioning the broken levees in this State, I would call your attention to those in southeastern Arkansas, especially the one known as the Opossum Fork Levee, which does as much damage to

the land in this State as if it were within our borders. An a
priation was made by the Legislature of this State to have it c
but it has not yet been attempted, and it would be well to bri
matter before the present session, that the appropriation may
newed or instructions or powers be given on the subject.

The first crevasse below the Arkansas line, one of the larg
the State, is known as the Ashton crevasse. The length of a
bankment to close this crevasse will be thirteen thousand tw
dred feet or two and one-half miles, and will contain 370,000
yards, by the formula recommended in the report of Ge
Humphreys and Abbott, of the United States Topographic
gineers. The floods through this crevasse, joining those fro
Arkansas crevasses, inundates the basins and valleys of the l
Macon and Tensas down to their mouths.

The next levees broken are known in their order as the
Arlington, Bass, Wilton and Savage, and they will require
aggregate three hundred and twenty thousand and seven hu
cubic yards to close them. These works, except the Wilton,
been "let," and will soon be constructed, and it is hoped the
levee will also be repaired, as it only requires twenty-three tho
four hundred cubic yards, as will appear in my rep
November 19.

The next crevasse is known as the Hawes Harris crevasse, i
junction with the Miller and Morancey crevasses below, which
all been occasioned by the Davis "cut off" in the Mississippi
presents a work of considerable magnitude, which, to close
temporarily, will require a great expenditure. The slightest t
rary works that I would recommend at these points would c
four hundred thousand cubic yards, and a proper work to b
from the threatened changes in the bed of the river will r
over eight hundred thousand cubic yards, and extend from
Hawes Harris' to the town of Milliken's Bend, as per my re
November 19 and December 7, 1868. A temporary levee, or
a levee of reduced section, is now being built from the town o
liken's Bend to a junction with the old levee on the Buckhorn p
tion, a distance of two and one-half miles, by Mr. P. J. Ker
under a contract with the Police Jury of Madison parish,
work will be brought before your honorable Board to ask you t
in a petition to the Legislature to pay for the same. The next
is at Duckport; it will require but sixteen thousand cubic
and is now under contract.

The levee at Young's Point is caving badly and a large portion of it will soon be gone. The work necessary here will be five thousand three hundred feet in length, and contain one hundred thousand cubic yards, and the breaks at Delta, only a short distance away, will require eighty-seven thousand five hundred cubic yards, and it would be useless to build one without building both. The crevasse at Diamond Island Bend will require a work of considerable magnitude for temporary purposes and a great work to effectually close it. A temporary levee would contain two hundred and eighty thousand cubic yards, and a proper levee would contain four hundred and forty-five thousand cubic yards, as it will more fully appear in my report of November 19. The Point Pleasant, Wilson and Brown crevasses may be said to be parts of the Diamond Island Bend crevasse as they are all occasioned by the same "cut-off" in the Mississippi river, and should be embraced in the same plan of protection. The Point Pleasant crevasse will require some seventy-five thousand yards of material. The Wilson crevasse not less than one hundred thousand yards, and the Brown crevasse about eighteen thousand yards; so it will be seen that the work in the immediate vicinity of the "cut-off" will amount to nearly six hundred and fifty thousand cubic yards. The Disharoon and Bondurant crevasses, which come next in order, are each of some extent and are very destructive. The Disharoon crevasse can be properly closed with eighty-three thousand yards of earth, but the Bondurant crevasse will require one hundred and ninety thousand cubic yards for temporary purposes, besides the work that would then be required at Hardscrabble, and the proper permanent work will include the Hardscrabble work and require four hundred and thirty-seven thousand cubic yards. The next two breaks are the Gillespie and St. Joseph, each of which is small and already under contract. The aggregate only twelve thousand cubic yards. Below St. Joseph comes the Kemp crevasse, which is of great importance, on account of the destruction in its flow. It will require one hundred and eighty-two thousand cubic yards by Humphrey's and Abbott's section to close this work, but will require much more of the section which has washed away. The broken levee at Waterproof will require ninety-five thousand cubic yards for temporary protection and over two hundred thousand cubic yards for a proper work. The Marengo crevasse is now being closed. It will contain seventy-eight thousand three hundred and seventy-nine cubic yards when com-

pleted. The Glasscock Island Bend crevasse was reported b on the nineteenth of November as only requiring twenty-s thousand cubic yards to temporarily close, but my subsequen aminations prove that not less than forty-seven thousand yard be required for the smallest work and sixty thousand yard make a much better line, and is recommended; the specialiti this change are embraced in my report of December 31. At a the neighborhood of Union Point, there should be a large built to properly defend that portion of Concordia Parish, and I mate that it will require one hundred and fifty thousand cubic to be of efficiency, and much more when the floods from Red are taken into consideration. The foregoing named levees crevasses are all above the mouths of Red river, and their nu and magnitude shows the distressful condition of the Fifth I District. It will require nearly four millions of cubic yards of to place these parishes in a safe condition for planting. This i the banks of the Mississippi alone, without considering the Ouac the Black and the Red river levees, or the large works on th terior bayous.

The first work claiming attention below Red river is the ra and strengthening of the Red river landing levee, which wil quire some forty thousand cubic yards. This work has been " The next works are some small breaks near New Texas lan which will only require a few thousand yards to close tempor but it will require a large work of four hundred and fifty thou cubic yards to make the country safe from the Morganza lev the bend above New Texas landing. The next break in orc probably the most important in the State, being the famous C Levee, of Pointe Coupee parish. This levee has properly clair large portion of your attention, and I am happy to inform yo there are at present about eight hundred laborers, wheeling into this Levee, and preparations are being made to doub force, and there is scarcely a possibility but that this crevas be completely and effectually closed before the next high wate fact it will be completed early in March of this present year, sixty days from now. The plan adopted for this work is to the entire front with a plank revetment that will prevent the and wash from affecting the new work, and also decrease, entirely check the transportation and seepage water. Below

levee the only breaks that have claimed the active attention of your engineers, are the Fairview levee, at the line of Jefferson and St. Charles parishes, the Caernarvon or Morgan levee, at the line of St. Bernard and Plaquemines, and the Waggaman levee, in Jefferson parish. These works are being constructed under contracts made or approved by your honorable Board.

There is also a large work being prosecuted in the parish of West Baton Rouge, under a contract between the lessees of the State Penitentiary and the parish authorities, but I have no knowledge of the nature of the contract, nor the extent of the quantity of work contracted for. The force is now engaged on the levee on the Allen plantation, and it seems to be a continuation of the Chinn and Robinson levees.

There are various small works and repairs that are needed in every parish below Red river, which it has been impossible, for want of time, to accurately estimate; and there are works being done by the planters, for which they will apply to the Legislature for pay or reimbursement. The amount of these small works and repairs will probably aggregate two hundred thousand cubic yards; but the new levees that should be built on the Mississippi, below Red river, will aggregate not less than three millions of cubic yards, for the necessity will soon occur of raising and strengthening all the levees on the Mississippi river, as the millions of acres of land that have been opened to cultivation in the Northwest, in the past ten years, the general improvement of the Mississippi, Missouri and Ohio rivers, and the levees now building round the Yazoo basin, will precipitate an increased volume of water upon our State, and some general system for the increase of the levees will have to be adopted. On this subject I will make a special report at an early day.

In this report it is impossible to even approximately estimate the work required on the Atchafalaya, the Lafourche, the Teche, the Red, the Ouachita, the Black, and other rivers and bayous that should claim your attention at the present time, but I will be under the amount when I place the aggregate at four millions of cubic yards for the important works alone. The amount of valuable lands overflowed, their past immense production of staples, and their probable enormous future contribution to the wealth and commerce of the country has so often been brought before the public that it seems useless to repeat such estimates, but I hope soon to present some statistical tables that will elucidate this subject, and

also suggest some plan for the construction and permanent mai tenance of the levees which I hope will meet with your favorable co sideration.

A recapitulation of the foregoing estimates is made in the follov ing table, which shows that it will require ten millions five hundre and ninety-seven thousand five hundred and seventy-eight cub yards to place the levees upon a protecting basis, and probably this there is now one million of cubic yards in course of constru tion, as your Board have contracted for a little less than nine hu dred thousand cubic yards, and many planters are trying to prote themselves and the police juries of some parishes, have ordered contracted for work.

Hoping that my next general report will be more explicit a definite, I respectfully submit the foregoing.

Your obedient servant,

M. JEFF. THOMPSON,
Acting Chief Engineer.

A true copy:

R. D. MITCHELL,
Secretary Board of Public Works

TABLE No. 2.

Approximate Amount of Levee Work Required in the State of Louisiana for the Year, 1869.

PARISHES.	Cubic Yards will require.	Cubic Yards now contracted for.	Remarks.
Carroll	926,670	251,260	Elton, Arlington, Bass and Savage.
Madison	1,348,500	16,000	Duckport (and the Morancey temporary) 100,000 yards.
Tensas	870,500	12,000	St. Joseph and Gillespie.
Concordia	371,378	125,379	Marengo and Glasscock Island Bend.
Pointe Coupée	1,080,530	400,000	Red river and Grand levee.
West Baton Rouge	500,000	.....	No contracts by the Board.
East Baton Rouge	200,000	.....	No contracts by the Board.
Iberville	300,000	.....	No contracts by the Board.
Ascension	200,000	.....	No contracts by the Board.
St. James	100,000	.....	No contracts by the Board.
St. John	100,000	.....	No contracts by the Board.
St. Charles	100,000	27,717	Fairview Levee,
Jefferson	100,000		
St. Bernard	100,000	63,082	Caernarvon or Morgan levee.
Plaquemines	300,000		
On Mississippi	6,597,578	.....	
Other streams	1,000,000	.....	
Total	10,597,578	895,407	

ARY
NOX AND
UNDATIONS

ANNUAL REPORT

OF THE

BOARD OF PUBLIC WORKS

TO THE

GENERAL ASSEMBLY OF LOUISIANA.

DECEMBER 31, 1869

NEW ORLEANS:
A. L. LEE, STATE PRINTER.
1870.

THE NEW YORK
PUBLIC LIBRARY
P 93665
ASTOR, LENOX AND
TILDEN FOUNDATIONS.

NOTE OF TRANSMITTAL.

STATE OF LOUISIANA, OFFICE BOARD OF PUBLIC WORKS,
New Orleans, La., January 10, 1870.

His Excellency H. C. WARMOTH, Governor of the State of Louisiana:

GOVERNOR—In compliance with section eight of act No. 72 of the General Assembly of the State of Louisiana, passed at the first session of the first Legislature, I have the honor, by direction of the Board, to herewith inclose the first Annual Report of the Board of Public Works up to December 31, 1869, for transmittal to the General Assembly now in session.

Very respectfully, your obedient servant,

R. D. MITCHELL,
Secretary Board of Public Works.

REPORT.

STATE OF LOUISIANA, OFFICE BOARD OF PUBLIC WORKS,
New Orleans, La., December 31, 1869.

To the Honorable Senate and House of Representatives
of the General Assembly of the State of Louisiana:

The Board of Public Works respectfully submit the following report of its operations, embracing all its transactions, and in some respects from its organization, to December 31, 1869:

The report of January 13, 1869, presented to the last General Assembly, gave the levees in course of construction and repair at that time, together with an approximated estimate of the number of cubic yards, cost, etc. After the date of said report the number and quantity of the works were increased by adding thereto several important, though small levees, and several crevasses that occurred in the spring of 1869, when the Mississippi river was at its height; also two levees in West Baton Rouge parish, aggregating over two hundred thousand cubic yards; the latter will be more fully explained in a subsequent part of this report. At the time of our last report no moneys or other funds was at the disposal of or in the possession of the Board, but under and pursuant to the provisions of certain acts of the Legislature a limited amount of money was subsequently placed in the State Treasury and drawn out in payment for levee work, etc., as shown in abstract No. 1 accompanying this report. The first two months immediately following our organization, the warrants for pay of commissioners, engineers and other expenses, were audited upon the levee fund and paid in cash. Since that time all warrants, save for levee work exclusively, have been audited upon the general fund. Abstract No. 2 will show the amount which has been audited upon the general fund for commissioners', engineers' and others' pay and necessary expenses; also on account of the Robertson & Allen, and Caine, Winter and Hereford Levees, from an unexpended balance of an "appropriation for protecting levees of the State," under act No. 122 of the Legislature of 1867.

By reference to Table No. No. 1, it will be seen that the levees con
structed during the year past, aggregate one million three hundre
and forty-six thousand and twenty-nine (1,346,029) cubic yards o
embankment, and one million two hundred and nine thousand an
forty-four (1,209,044) feet of lumber at a cost of seven hundred an
twenty-four thousand six hundred and seventy-four ($724,674) do
lars. Table No. 2 will make an additional amount for crevasses o
thirteen thousand and fifty-five dollars and seventy-nine cent
($13,055 79), making a total of seven hundred and thirty-seve
thousand seven hundred and twenty-nine dollars and seventy-nin
cents ($737,729 79). Of this amount only twenty-three thousand fou
hundred and forty-six dollars and ninety-six cents ($23,446 96
remains unpaid, as is set forth in Abstract No. 3, and eight thousan
two hundred and sixteen dollars and fifteen cents ($8,216 15), f
which latter amount two warrants were issued on the supposition
that there would be sufficient funds in the treasury to pay then
They are included (in table No. 1) in amount paid in cash warrant
but are yet unredeemed. The abstracts and table accompanyin
this report are intended to show fully and clearly the financial tran
actions of the Board, and the books, accounts and vouchers are
the office, and are open to your inspection whenever it is desirabl

The levees built under the supervision of the Board have prov
of incalculable benefit to the State, and all of them are now in go
order. The glasscock levee, contracted for last year, was the on
work which failed in being finished. This failure was owing to t
many difficulties and impediments which the contractors could n
overcome, notwithstanding they labored diligently so to do, at a s
rifice of their personal interests and without hope of reward. P
ticularly was this the case with the principal, William Wright.
the river rose and began to run through the portion of the w
which was then open, the expedient of using lumber was resorted
and one of our engineers was ordered to superintend the work
person. Before the timber work could be secured by the placing
earth to support it, the increase of water created too strong a c
rent and prevented the effectual closing of the opening. A cert
amount of money was advanced to meet the demand for extra la
and lumber, and of this amount two thousand nine hundred
seventy dollars and ninety-five cents ($2,970 95) was returned by

ontractors, and is accounted for under "Receipts" in Abstract No. , as the same is charged to this levee in Table No. 1.

Your honorable bodies, upon adjournment at last session, left us, s a Board created for the building of the levees of the State, without providing means for future operations. In the early part of the eason, the citizens of the State, individually and through the police uries and other parish authorities, appealed to us for protection, asing their appeals upon the principle that, as they paid the levee nd other taxes, they were entitled to protection, and consequently ooked to the Board, as the proper representative body of the State, o put the levees in a more secure condition. We are at a loss vhat action to take, being almost in a helpless condition, still deiring to do whatever was in our province and power. During the ipparent dilemma, we deemed it proper to inform the people of the ituation of the Board. With this object in view, a condensed statement was prepared and transmitted to the Governor of the State, who published the same. This statement or report is herewith annexed. The serious question then arose, "What course shall the Board pursue?" After much consideration, it was determined to adopt what then appeared to be the most practicable and feasible plan for the building of the levees, and which it was then thought would result to the interests of all concerned; therefore, on the sixth of July, 1869, the following resolution was adopted and promulgated:

"Whereas, The Board is without funds to pay for work on the levees that is absolutely needed to close crevasses that will not only save the country from overflow, but also save the washing away of existing levees; therefore,

"*Be it resolved*, That whenever a party or parties agree in writing to furnish the means to build or repair any levee, or such as may be deemed by the Board of sufficient importance in protecting the planting interest of the State, that the Board will have the same examined and located by its engineers (and constructed, if necessay, at the said planter's expense), and that the Board will join in a petition or recommendation to the Legislature at its next session to refund to said party or parties such amounts as may have been properly expended, or will pay the same out of appropriations that may be nade by the General Assembly for such purpose."

This resolution proved inefficient, as but few planters or re sible parties proposed to do any work under it; hence, on Oc 7, it was rescinded. It then became necessary to change the of operation, and, on the date of the rescinding of the foreg resolution, the most important and urgent levees then known ordered to be advertised. Bids for these levees were to be rec and opened on the twenty-ninth of October. Before the ope however, the Governor, the Finance Committees and Committe Public Lands and Levees of the Senate and House of Repres tives, were consulted, and by and with their advice and concur we resolved to contract for the building of from two millions t millions and a half of cubic yards, providing the bids were at sonable prices and from responsible parties. The pay or remu tion was predicated upon appropriations to be made by the Leg ture. It is a source of relief and satisfaction to show that the now being performed will cost only a small per centage per yard more than was paid last year in cash. In letting the pr work, care was taken to select that from which the greatest da and destruction was apprehended, and the building of which v protect the greatest area and most valuable portion of the all districts. In reducing the levees first proposed to the minim became necessary to reject some which had been advertised among which were many of importance. Those above the r of Red river were reduced to what is understood as half That is, the base contracted and the height from three to fiv above high water of last spring. With the Ashton and Dia Island crevasses open, it was deemed politic to establish th grade system, under which a much greater extent of country protected, and which will answer every purpose, unless in a of exceedingly high water.

Under the resolution adopted July 6, 1869, the Kempe le Tensas parish, was applied for by James, Buckner & Co., les the State penitentiary. The break at this place was known to of the most important and destructive in the State. In 186 new levee was built there, at a great cost, and was carried a the high water the following season. The banks have, wit last two years past, caved about one thousand feet. Minute tion revealed the fact that the break immediately above and

the most serious cave, was firm, and of a clay substance, and that an island was forming in the river directly opposite to the caving bank. From these and other circumstances, it was concluded that the eating away, or caving, must soon cease, and acting upon this idea, a line was established upon which to build a levee, and the said penitentiary lessees immediately commenced work with the convict labor. Up to the sixteenth of the present month, but little progress had been made, and the prospect for its early completion was very unfavorable. About this date the said James, Buckner & Co. transferred the work to Hatch, James & Co., with the view of saving what work they had done, and with the prospect of having the levee finished. The Board was at once informed of this transfer, whereupon it entered into an agreement with said Hatch, James & Co., for the whole work. The following resolution, adopted by the Board on the sixteenth instant, will fully explain the transaction :

"Whereas, the Board of Public Works did, on July 6, 1869, adopt a resolution, authorizing the building of levees, under certain contingencies ; and whereas, James, Buckner & Co., lessees of the State penitentiary, did, under and pursuant to said resolution, propose to build such levees as the Board would designate, at fifty-five (55) cents per cubic yard, on cleared land, and sixty (60) cents on timbered land, the same to be paid out of appropriations that might be made by the Legislature for levee purposes; and did also propose to put thereon the convicts of the penitentiary, having this right under their agreement with the State ; and whereas, the Board did, after consultation with the Governor of the State and other parties, accept said proposition of James, Buckner & Co. for the work known as 'Kempe' Levee, in the parish of Tensas, estimated at 200,000 cubic yards, more or less; and whereas, said James, Buckner & Co. have found it impossible to continue and to complete said work, with the labor proposed, and have consequently transferred said work to Hatch, James & Co., with the view thereby of saving what work has been done, and with the prospect of the work being completed; and whereas, said Hatch, James & Co. did accept said work in good faith, believing that the usual form of agreement as adopted by the Board, had passed between the Board and said James, Buckner & Co., and have made advances for their employes on said work to the amount of twelve thousand ($12,000) dollars, and now propose to

withdraw their men and abandon said work, unless the same is pr
perly recognized by the Board; and whereas, the withdrawal of th
force, and the abandonment of said work at this time, would jeopa
dize the planting interests of a vast and prolific section of t
State, and probably ruin many individuals who have been and wh
are relying upon the completion of said work; and whereas, sa
levee is known to be of too great importance to leave in its prese
unfinished condition; and whereas, the usual manner of advertisin
for proposals is impracticable, as an emergency exists and prom
action on the part of the Board is demanded; Therefore, *Be it r
solved*, That we hereby ratify the transfer of the said 'Kempe' lev
by James, Buckner & Co. to Hatch, James & Co., at the price he
tofore stated and agreed upon between the Board and said Jam
Buckner & Co., and the President of the Board is hereby authoriz
to enter into an agreement with said Hatch, James & Co. for
of said work, and to place said Hatch, James & Co. under bonds,
the usual ratio, for the completion of the said levee. And, *B
further resolved*, That monthly estimates shall be made of w
done, and certificates of such estimates given in like manner as
been or may be arranged for other levees now being constructed
said Hatch, James & Co., and other parties.

Table No. 8 contains the levees that have been and are being b
in compliance with the provisions of the resolution of July
before stated; also, such claims for levee work as were recommen
to the last Legislature for reimbursement. This table is somew
imperfect, as no price was originally adopted for some of the w
named.

By Act No. 123 of the Legislature of 1869, the Board of Pu
Works and the State Treasurer were authorized to sell certain l
bonds which were held by certain parties as collateral securit
moneys loaned to former Levee Boards, to pay certain indebted
etc. Pending these negotiations, the lessees of the State pen
tiary garnished said bonds and their proceeds under Act No.
of the Legislature of 1868, claiming that they were entitled to
ment for certain work done on certain levees in accordance with
act. The case on the part of the State was placed in the han
the Attorney General of the State and Hon. C. Roselius. It
deemed prudent to effect an amicable settlement, if possible; t

fore a compromise was entered into between said lessees and the Board whereby said suit was withdrawn and the bonds and proceeds released, in consideration of which, the said lessees were to receive pay for all the work done on the Robertson & Allen and the Caine, Winter and Hereford levees at the price of fifty cents per cubic yard, in cash. Twenty thousand ($20,000) dollars was paid in cash and one hundred and two thousand five hundred and sixty-nine dollars and fifty-one cents, $102,569 51) in State warrants on the general fund, calculated at eighty-six cents on the dollar. Table No. 1 will exhibit the account.

In the case of crevasses the Kempe levee before mentioned and some small urgent and necessary works, contracts have been made or authority given for their closing and construction without the advertising for twenty days, as required in section 6 of the Act creating the Board. This has been done only when there was an imperative necessity of prompt action, and in such instances as would not admit of delay. We beg leave to request that authority be given the Board to arrange for any urgent work that may occur without the delay of advertising; also, that additional powers be given the Board, that it may endeavor to prevent the injury to and destruction of the levees by the use of them for roadways and by the tapping or cutting of them, as is done in many instances, for different purposes.

The crevasses that occurred last spring, with scarcely an exception, were the result of craw-fish holes. A little work done in time would have effectually prevented any disaster from this cause. We would, therefore, request that the Board be empowered to compel the riparian proprietors, or the police juries, or syndics of the river parishes, to use all due precaution, during the season of high water, to avert the danger from this source; or that it be authorized to employ such force as may be deemed necessary, during the season of high water, to guard and watch the most dangerous levees.

The work now under contract and in course of construction is being pushed forward with vigor, and we hope to have it all completed in ample time to afford protection to the country. It will probably foot up, as stated in Table No. 7—which is the most accurate compilation that can be made at this time—to two and a half millions (2,500,000) of cubic yards, and at a cost of (including table No. 8) one and a half million of dollars, ($1,500,000). This indebtedness we respectfully ask your honorable bodies to well consider, and to

mandamusing the Governor of the State for the prescribed bonds for certain work alleged to have been completed by them. The litigation still continuing, the Board has remained neutral in the examination of the work reported as being done and that to be done.

Accompanying this report will be found detailed reports from our engineers to the Board. These are not only intended for special but also for general information.

In conclusion we take pleasue in acknowledging the assistance which has been rendered us by his Excellency the Governor of the State, by members of the General Assembly, and by other State officials with whom we have by the nature of our business been brought in contact.

By order of the Board.

MARTIN FLOOD, President.

ABSTRCT No. 1.

Abstract of Cash Receipts and Expenditures of Board of Public Works to December 31, 1869.

RECEIPTS.	AMOUNT.	EXPENDITURES.	AMOUNT.
Proceeds of bonds under act No. 138, approved October 5, 1868	$346,094 86	For construction of levees—table No. 1	$607,848 38
Proceeds of bonds under act No. 58, approved March 5, 1869	10,936 10	For crevasses—table No. 2	6,835 89
Proceeds of bonds under act No. 123, approved March 16, 1869	256,403 48	For expense account—table No. 3	2,304 15
By Wm. Wright & Co., contractors for Glascock levee—table No. 1	2,970 95	For salary and mileage of commissioners—table No. 4	4,624 84
		For salary, mileage and expenditures of engineers—table No. 5	2,176 53
		For advertising and printing—table No. 6	831 75
	$616,405 39		
To balance	8,216 15		
	$624,621 54		$624,621 54

WARRANTS.	AMOUNT.	EXPENDITURES.	AMOUNT.
Act No. 122, Legislature of 1867, for construction of levees	$101,819 58	For construction of levees—table No. 1.	$102,569 51
		For expense account—table No. 3	11,616 41
Act No. 72, Legislature of 1868, creating Board of Public Works	49,040 90	For salary and mileage of commissioners—table No. 4	18,236 49
		For salary, mileage and expenditures of engineers—table No. 5	15,393 73
	$150,860 48		
To balance	749 93	For advertising and printing account—table No. 6	3,794 27
	$151,610 41		$151,610 41

ABSTRACT No. 3.

Abstract of Levees and Crevasses worked in 1868 *and* 1869 *upon which amounts remain unpaid.*

NAME OF LEVEE.	NAME OF CREVASSE.	PARISH.	CONTRACTOR.	AMOUNT UNPAID AND DUE
Marengo..	.....	Concordia.....	P. J. Kennedy.....	$1,828 45
Robertson and Allen.....	.....	West Baton Rouge....	Huger & Jones.....	5,819 73
Caine, Winter and Hereford.	.....	West Baton Rouge....	Huger & Jones	4,353 53
Wilton, No. 2.....	.....	Carroll.....	Buckner, Rhodes & Goodrich	4,299 16
Wilton, No. 1.....	.....	Carroll.....	.....	926 19
.....	Stevenson...	St. John the Baptiste.	Edward Roussel and others..	4,438 62
....	Morganzia	Pointe Coupée.....	P. J. Kennedy.....	1,781 28
				$23,446 96

(Price based on Cash.)

NAME OF LEVEE.	PARISH.	CONTRACTOR.	Cubic Yards	Price.	Feet of Lumber.	Price per M feet.	Total Cost.	Total.	Paid in Cash and in Cash Warrants.	Paid in General Fund Warrants.	Amount Unpaid and Due.
*Grand	Point Coupee	P. J. Kennedy	435,720.00	72½		$40	$315,897 00	$363,397 96	$363,397 96		
Grand	Point Coupee	P. J. Kennedy			1,187,524		47,500 96				
Elton	Carroll	John McGinty	26,542.00	29			7,697 18	7,697 18	7,697 18		
Bass	Carroll	P. J. Kennedy	103,234.00	32			33,034 88	33,034 88	33,034 88		
Morgan	Plaquemines	M. M. Nolan	64,082.00	27			17,302 14	17,302 14	17,302 14		
Marengo	Concordia	P. J. Kennedy	78,378.67	45			35,270 40	38,528 45	36,700 00		$1,828 45
†Marengo	Concordia	P. J. Kennedy					3,258 05				
Fairview	St. Charles	P. J. Kennedy	27,717.00	34			9,423 78	9,423 78	9,423 78		
Lake Providence	Carroll	J. W. Burke	24,718.00	29			7,168 22	7,168 22	7,168 22		
Savage	Carroll	P. J. Kennedy	135,000.00	27½			37,125 00	37,125 00	37,125 00		
Duckport	Madison	P. J. Kennedy	18,313.00	28¾			5,264 98	5,264 98	5,264 98		
Glasscock	Concordia	William Wright & Co.	40,938.00	33½			13,714 25	16,945 05	**19,916 00		
†Glasscock	Concordia	William Wright & Co.					3,230 80				
St. Joseph	Tensas	Lawrence Murphy	5,474.00	33			1,806 42	1,806 42	1,806 42		
Gillespie	Tensas	Lawrence Murphy	8,495.90	33			2,803 64	2,803 64	2,803 64		
Red River Landing	Point Coupee	P. J. Kennedy	16,706.67	34			5,680 26	6,541 06	††6,541 06		
Red River Landing	Point Coupee	P. J. Kennedy			21,520	40	860 80				
Red Store	Point Coupee	P. J. Kennedy	23,522.70	34			7,997 72	7,997 72	7,997 72		
New Texas Landing	Point Coupee	P. J. Kennedy	2,003.20	34			681 08	681 08	681 08		
Morancey	Madison	P. J. Kennedy	83,049.50	35			29,067 32	29,067 32	‡‡29,067 32		
†McDonough	Orleans, r. b	Thomas Kenefic					716 00	716 00	716 00		
†Jefferson	Jefferson, r. b	Thomas Kenefic					605 00	605 00	605 00		
Robertson & Allen	West Baton Rouge	Huger & Jones	136,659.04	50			68,029 52	78,156 69		$72,336 96	5,819 73
‡Robertson & Allen	West Baton Rouge	Huger & Jones					10,127 17				
Caine, Winter & Hereford	West Baton Rouge	Huger & Jones	100,707.07	50			50,353 53	54,586 08	20,000 00	30,232 55	4,353 53
‡Caine, Winter & Hereford	West Baton Rouge	Huger & Jones					4,232 55				
†Villere	Plaquemines	J. Villere					600 00	600 00	600 00		4,299 16
Wilton No. 2	Carroll	Buckner, Rhodes & Goodrich	12,644.60	34			4,299 16	4,299 16			
Wilton No. 1	Carroll		2,724.10	34			926 19	926 19			926 19
			1,346,029.45		1,209,044		$724,674 00	$724,674 00	$607,848 38	$102,569 51	$17,227 06

* Price increased from 52½ to 72½ cents, under Act No. 91. Approved March 8, 1869.

† Labor, timber and other material included, for repairs and extra work.

‡ Discount on warrants at eighty-six cents on the dollar.

** $2,970 95 of this amount returned by contractors.

†† Warrant No. 13, for $841 58, is still unpaid.

‡‡ Warrant No. 15, for $7,374 57, is still unpaid.

TABLE No. 2.

Statement of Crevasses Closed and Worked, showing amounts paid in Cash, in Cash Warrants and remaining unpaid.

NAME OF CREVASSE	PARISH.	TO WHOM PAID.	TOTAL COST.	PAID IN CASH.	PAID IN CASH WARRANTS.	AMOUNT UNPAID AND DUE
Stevenson.....	St. John the Baptist.	Edward Roussel and others	$4,938 62	.....	$500 00	$4,438 62
Morganzia.....	Pointe Coupée.....	P. J. Kennedy.....	7,117 17	.....	5,335 89	1,781 28
Villere.....	St. Bernard.....	A. W. Walker	1,000 00	$1,000 00	.....	.....
			$13,055 79	$1,000 00	$5,885 89	$6,219 90

TO WHOM PAID.	NATURE OF INDEBTEDNESS.	AMOUNT.	PAID IN CASH.	PAID IN CASH WARRANTS.	PAID IN GENERAL FUND WARRANTS.
T. Sederberg	For piloting steamer Ella Morse during an inspection of the Mississippi levees, in November, 1868	$200 00	.....	$200 00	.....
R. D. Mitchell	For salary as secretary	3,151 50	.....	570 00	$2,581 50
C. Duhamel	For surveying instruments	461 27	.....	353 20	108 07
John Flynt	For salary as porter from November 1, 1868, to May 31, 1869	360 00	.....	80 00	280 00
Julius Loeffler	For gas fixtures	122 50	.....	76 75	45 75
E. C. Palmer & Co	For matting	336 20	.....	266 20	70 00
Expense	For rent of offices for board and engineers	2,968 36	.....	.....	2,968 36
George W. Rollins	For salary as assistant secretary	2,192 70	.....	.....	2,192 70
Mitchell, Craig & Co	For furniture	366 45	.....	.....	366 45
W. G. Coyle & Co	For coal	20 00	.....	.....	20 00
Expense	For rent of postoffice box, postage, telegrams, etc	212 15	.....	.....	212 15
M. R. Pittman	For map case and drawing table	122 25	.....	.....	122 25
John D. Smith	For salary as porter from June 1 to December 31, 1869	420 00	.....	.....	420 00
Expense	For expenses of the board while inspecting levees on the Mississippi river, in November, 1868	396 02	.....	.....	396 02
J. D. Lott	For superintending the building of Savage levee	400 00	.....	.....	400 00
H. B. Thompson	For services in assisting engineers on levees	200 00	.....	.....	200 00
P. Montgomery	For services as watchman on Grand levee	150 00	$150 00	.....	.....
J. B. Sneed	For services as watchman on Grand levee	60 00	60 00	.....	.....
H. A. Peeler	For expenses of labor on Morganzia levee	46 00	46 00	.....	.....
C. Roselius	For professional services	500 00	500 00	.....	.....
A. B. Long	For professional services	770 00	.....	.....	770 00
Jos. Ferguson	For moving office furniture, etc	75 00	.....	.....	75 00
J. G. Longstreet	For services in assisting engineers on levees	66 66	.....	.....	66 66
Expense	For expenses of laborers in staking out levees	321 50	.....	.....	321 50
		$13,920 56	$758 00	$1,546 15	$11,616 41

TABLE No. 4.

Payments on Account of Salary and Mileage of Commissioners, showing Amounts paid in Cash Warrants and in General Fund Warrants.

TO WHOM PAID.	SALARY.	MILEAGE.	TOTAL AMOUNT.	PAID IN CASH WARRANTS.	PAID IN GENERAL FUND WARRANTS.
S. W. Sawyer	$2,833 33	$640 50	$3,473 83	$810 00	$2,663 83
J. C. Van Wickle	2,833 33	1,339 50	4,172 83	620 67	3,552 16
George S. Cleveland	2,826 67	817 50	3,644 17	536 17	3,108 00
Martin Flood	2,920 00	2,980 50	5,900 50	1,138 00	4,762 50
George C. Benham	2,820 00	2,850 00	5,670 00	1,520 00	4,150 00
	$14,233 33	$8,628 00	$22,861 33	$4,624 84	$18,236 49

Payments on Account of Engineer's Department for Salary, Mileage and Expenditures, showing Amounts paid in Cash Warrants and in General Fund Warrants.

TO WHOM PAID.	SALARY.	MILEAGE.	EXPENDITURES.	TOTAL AMOUNT.	PAID IN CASH WARRANTS.	PAID IN GENERAL FUND WARRANTS.
M. Jeff. Thompson.....	$3,500 00	$2,062 05	$94 50	$5,656 55	$1,051 00	$4,605 55
John V. Van Pelt.....	3,500 00	1,695 45	56 50	5,251 95	824 60	4,427 35
H. A. Peeler.....	2,833 33	761 55	13 25	3,608 13	.....	3,608 13
A. F. Wrotnowski.....	2,673 33	307 80	72 50	3,053 63	300 93	2,752 70
	$12,506 66	$4,826 85	$236 75	$17,570 26	2,176 53	$15,393 73

TABLE No. 6.

Advertising and Printing, showing Amounts paid in Cash Warrants and in General Fund Warrants.

TO WHOM PAID.	NATURE OF INDEBTEDNESS.	AMOUNT.	PAID IN CASH WARRANTS.	PAID IN GENERAL FUND WARRANTS.
New Orleans Republican	Advertising and printing	$848 85	$490 50	$358 35
Elton Eagle	Advertising	27 00	27 00	.....
New Orleans Crescent	Advertising	169 25	158 25	11 00
New Orleans Times	Advertising	126 75	27 00	99 75
Iberville Pioneer	Advertising	6 00	6 00	.....
New York Tribune	Advertising	48 00	.....	48 00
New Orleans Picayune	Advertising	193 60	.....	193 60
Vicksburg Herald	Advertising	20 00	.....	20 00
Homer Iliad	Advertising	15 00	.....	15 00
Lafourche Republican	Advertising	39 00	.....	39 00
New Orleans German Gazette	Advertising	82 00	.....	82 00
John W. Madden	Stationery, tracing cloth, map paper, etc.	884 83	80 25	804 58
William Barrett	Stationery	42 75	42 75	.....
John W. Madden	Maps of portions of Louisiana	2,014 66	.....	2,014 66
William Barrett	Maps of portions of Louisiana	73 33	.....	73 33
William J. McCullough	Maps of portions of Louisiana	35 00	.....	35 00
		$4,696 09	$831 75	$3,794 27

Statement of Levees now under Contract; to whom Awarded; Approximate Estimate; Number of Cubic Yards and Cost.

District.	Name of Levee.	Parish.	Contractor.	Cubic Yards.	Price.	Amount.	Cubic Yards in each District.
First . .	Hickey	East Baton Rouge.	F. Germain	25,000	55	$13,750 00	
First . . .	Walker	East Baton Rouge	John McGinty	18,000	57	10,260 00	
First. . .	Hard Times	Ascension	P. J. Kennedy	25,000	55	13,750 00	
First. . .	Doyal	Ascension	P. J. Kennedy	25,000	55	13,750 00	
First. . .	Kenner	Ascension	P. J. Kennedy	10,000	55	5,500 00	
First. . .	Landry	Ascension	Thomas O'Malley	51,500	55	25,325 00	
First. . .	Hagan	Jt. James	Bartels & Jacobshagen	5,150	40	2,060 00	
First . . .	Reserve	St. John the Baptist	P. J. Kennedy	25,000	55	13,750 00	
First. . .	Sarve	Jefferson, left bank	H. R. Gogreve	111,000	50	53,500 00	
First. . .	Villere No. 2	St. Beanard	P. Leonard	10,000	40	4,000 00	
First. . .	Davidson's	St. Bernard	P. Leonard	16,000	45	7,200 00	
First. . .	Lesseps	St. Bernard	P. Leonard	16,000	50	8,000 00	
First. . .	Conne	St. Bernard	P. Leonard	15,000	50	7,500 00	352,650
Second .	Collins	Pointe Coupée	H. C. Douherty	10,000	55	5,500 00	
Second .	Red River Landing	Pointe Coupée	H. C. Douherty	8,000	75	6,000 00	
Second .	Fisher's Landing	Pointe Coupée	J. B. Lewis	20,000	50	10,000 00	
Second .	Morganzia	Pointe Coupée	P. J. Kennedy	400,000	60	240,000 00	
Second .	Red Store	Pointe Coupée	J. B. Lewis	28,000	47	13,160 00	
Second .	St. Francis	Pointe Coupée	P. Dooling	8,700	35	3,045 00	
Second .	Waterloo	Pointe Coupée	J. B. Lewis	34,000	43	14,620 00	
Second .	Dupuy	Iberville		37,500	54	20,250 00	
Second .	Hall & Whaly	Iberville		12,000	54	6,480 00	
Second .	Roman	St. James	P. J. Kennedy	100,000	55	55,000 00	
Second .	Zeringue	St. Charles	R. Vansickle	10,400	48	4,992 00	
Second .	La Branche	Jefferson, right bank	P. J. Kennedy	100,000	55	55,000 00	
Second .	Fazende	Jefferson, right bank	P. Fortier	70,000	53	37,100 00	

TABLE NO. 7—*Continued.*

District.	Name of Levee.	Parish.	Contractor.	Cubic Yards.	Price.	Amount.	Cubic Yards in each District.
Second.	Villere No. 1	Orleans, right bank	H. R. Gogreve	13,500	50	6,750 750	852,100
Third.	Bayou Gurran	St. Landry		62,000	68½	42,470 00	62,000
Fifth	Deason's	Carroll	Hatch, James & Co	33,350	50	16,675 00	
Fifth.	Stamboul	Carroll	P. Harnan	4,300	70	3,010 00	
Fifth.	Illawarra	Carroll	Hatch, James & Co	120,000	60	72,000 00	
Fifth.	Bell & Newman	Carroll	Hatch, James & Co	10,000	50	5,000 00	
Fifth.	Hawes Harris	Carroll	Hatch, James & Co	120,000	65	78,000 00	
Fifth.	Buckhorn	Madison	Hatch, James & Co.	40,000	65	26,000 00	
Fifth.	Young's Point	Madison	P. J. Kennedy	100,000	58	58,000 00	
Fifth.	Delta	Madison	P. J. Kennedy	100,000	58	58,000 00	
Fifth.	Point Pleasant	Tensas	P. Harnan	70,000	55	38,500 00	
Fifth.	Buckner's	Tensas	P. Harnan	25,000	55	13,750 00	
Fifth.	Wilson's	Tensas	Hatch, James & Co	100,000	55	55,000 00	
Fifth.	Brown's	Tensas	Hatch, James & Co.	8,600	55	4,730 00	
Fifth.	Hard Times	Tensas	Hatch, James & Co	25,000	55	13,750 00	
Fifth.	Disharoon	Tensas	Hatch, James & Co	50,000	65	32,500 00	
Fifth.	Hardscrabble	Tensas	Hatch, James & Co.	15,000	65	9,750 00	
Fifth.	Bondurant	Tensas	Hatch, James & Co	75,000	70	52,500 00	
Fifth.	Kempe	Tensas	Hatch, James & Co	50,000	55	27,500 00	
Fifth.	Kempe	Tensas	Hatch, James & Co.	172,000	60	103,200 00	
Fifth.	Waterproof	Tensas	Hatch, James & Co	45,000	65	29,250 00	
Fifth.	Glasscock	Concordia	Lawrence Murphy	70,000	59	41,300 00	1,233,250
				2,500,000		$1,442,127 00	2,500,000

NAME OF LEVEE.	PARISH.	CLAIMANT.	CUBIC YARDS.	PRICE.	AMOUNT.
.....	Ascension	D. W. T. Bisbee.....	....	.....	.....
Waggaman.....	Jefferson, right bank.....	Mrs. C. Waggaman.....	7,446 48	30	$2,233 94
Belmont.....	West Baton Rouge.....	L. F. Genere.....	6,413.55	.....	.....
Zolly..... ..	St. Charles.....	Jacob Zolly.....	7,844.53	.....	.....
Roman.....	St. Charles.....	Thomas Gill.....	6,109.00	30	1,832 70
Whitehead.....	St. Charles.....	William B. Whitehead.....	3,738.00	22	822 36
McLean.....	Pointe Coupee.....	Jerry O'Neil.....	1,600.00	35	560 00
St. Joseph.....	Tensas.....	Robert Murdock.....	600.00	40	240 00
Gaudet.....	Lafourche.....	Police Jury.....	.....	.....	3,125 00
McDonough.....	Orleans, right bank.....	Police Jury.....	25,000.00	.....	.....
Louisa.....	St. Charles.....	Feret Brothers.....	5,782.56	.....	.....
Reserve.....	St. John the Baptiste.....	Edward Johnson and others....	.....	.....	92 75
Douherty.....	West Baton Rouge.....	Citizens' Bank.....	18,380.00	26	4,778 80
Poydras.	St. Bernard.....	John Davidson.....	.....	.....	2,500 00
St. Martin.....	St. John the Baptiste.....	Pierre Nougue.....	.....	.....	587 00

REPORT.

STATE OF LOUISIANA, OFFICE BOARD OF PUBLIC WORKS,
NEW ORLEANS, July 6, 1869.

Hon. H. C. WARMOTH, Governor of the State of Louisiana.

GOVERNOR—In consequence of the inability of the Board of Public Works to make final payments for much work done on levees by its direct order and within its knowledge, and in consideration of the many claims which have been presented, not only for work done under regular contracts or by order of the Board, but also for several small levees built and repaired and emergent work done to prevent crevasses, the Board, in open session on the ninth ultimo, adopted the following resolution, namely:

Resolved, That in order that the people of the State may understand where the responsibility of the failure properly belongs, the President is hereby authorized to report to his excellency, H. C. Warmoth, the fact that the Board of Public Works is without funds to build the levees of the State, or to pay for much work already done, owing to the failure of the authorities of the State to make requisite appropriations, and that such report be submitted to the Board at its next meeting.

In compliance with the foregoing resolution, we have the honor to state, briefly, that soon after the organization of the Board, in 1868, an amount of work was contracted for equivalent to an amount of funds that were then supposed would become available. As these works progressed, it became necessary, in some instances, to increase the quantity, and to use extraordinary exertions for their completion or security, as the river rose above its banks much earlier than usual and remained up for a longer period. During the session of the last General Assembly, and subsequent to the time when the report of this Board was submitted to that honorable body, the Committees on Public Lands and Levees, of both Houses, were informed of the financial condition of the Board, and were requested to

take some immediate action for its relief. A bill for this object
finally prepared, introduced into and passed the lower House,
sent to the Senate, which body failed to act upon it, because of
want of time prior to its adjournment. The same General Assem
did, however, by certain acts, authorize the sale of certain pled
levee bonds, the redemption of certain indebtedness, and the bala
accruing therefrom to be placed to the credit of the Board, to
Joint resolution No. 58, approved March 5, 1869, whereby $10,936
was given to our Board; act No. 123, approved March 16, 1
whereby $246,903 48 has also been added to our credit, leavin
balance, in coupons, to the value of about $20,500, still retained
Pike, Brother & Co., which they decline to deliver, and coupon
the value of about $7410 in the possession of the State Treasu
which remains to be negotiated.

From the fact that $67,031 47 was paid to Messrs. Huger & Jo
by authority of act No. 206, approved November 5, 1868, w
amount was deducted for moneys due the Board by virtue of
proceeds of the sale of Bonds, as provided for by act No. 138,
proved October 5, 1868, and owing to the addition to the first
of the work known as Grand Levee, parish of Pointe Coupée,
the additional price paid for building the same, by virtue of act
91, approved March 8, 1869, this levee amounted to $134,39
above the original estimate; and $29,067 32 was paid for "Mc
cey" levee, parish of Madison, which levee was not originally
cluded in the work to be done; and $20,000 was paid to the les
of the State penitentiary on account of work done by them on C
Winter and Hereford levee, under act No. 206, approved Nover
5, 1868, as per agreement effected between said lessees and
Board, on May 8, 1869, in order that the proceeds of the bonds
as above referred to could be released from the garnishee sued
by said lessees; also the additional amounts paid for the increa
other works and additional outside work and expense, the
amount to the credit of the Board has been exhausted, and we u
tunately find ourselves short of funds and wholly unable to liqui
many just claims for work done during the past season.

We as yet fail to understand that we are authorized, or woul
justified in issuing certificates of indebtedness, or pledging the c
of the State for money to pay unsettled accounts, or to use in b

ing levees, or repairing crevasses and injury to levees, during the approaching season of low water or before the spring rise of 1870. That some effort should be made to put the levees in a more secure condition is evident and must be admitted; but the most efficient and practical course to pursue in the absence of adequate appropriations by the Legislature, is still a problem and difficult to solve. We can only hope that sufficient light will be given to direct us in that course that will best serve the interests of the State and its citizens, as we desire to protect them from the disastrous effects of the destructive element which, no doubt, will threaten the lower Mississippi valley within the next year. We feel confident that so far as our limited judgments were capable, we have conscientiously performed the onerous duties which have, from time to time, devolved upon us, and now would, were it possible, be pleased to settle the outstanding claims, to extricate ourselves as a body from our present embarrassed situation, and to benefit all sections of the State.

We request all persons who have claims for work done on the levees of the State, during the season just past, to present the same in proper form at the office of the Board, before the close of the present year, but not to anticipate their payment, or expect us to accomplish impossibilities. Such accounts as cannot at once be settled, will be examined, and if found legitimate, will be recommended to the next Legislature for reimbursement. We simply desire, through your Excellency, to show the people of the State the difficulties under which we have labored, and the intricacy in which we are now placed. Trusting that we have, to some extent at least, accomplished the object, without reflecting upon or doing injustice to any authoritative body, we have the honor to be,

Your obedient servants,

MARTIN FLOOD,
President Board of Public Works.

Received and approved in open session, this sixth day of July, 1869.

J. C. VAN WICKLE,
GEO. S. CLEVELAND,
GEO. C. BENHAM,
Commissioners.

R. D. MITCHELL, Secretary.

REPORTS OF ENGINEERS.

ENGINEER'S OFFICE, BOARD OF PUBLIC WORKS,
NEW ORLEANS, LA., October 5, 1869.

General MARTIN FLOOD, President Board of Public Works:

GENERAL—In pursuance of instructions from your honorable Board, I have made an examination of the condition of the levees from the Arkansas State line southward, in Louisiana, and herewith make my report:

I reached the neighborhood of the State line on the thirteenth ultimo, and immediately began my examinations. I found that from the State line down to the lake, on the Goza land, the levee is entirely gone, and that the bank has caved far back from the line of 1868, and is still caving at a very rapid rate. This will continue, season after season, unless this crevasse is closed, and to close it will require the co-operation of the State of Arkansas, as the levee above the Louisiana line is down, or defective, for several miles.

The proposed location of this levee, at the inspection of the Board in November, 1868, will not be materially changed, nor the quantity increased, and therefore I still estimate that four hundred thousand cubic yards of material will be necessary to close the Ashton crevasse.

The next place where work will be needed is at the Berry plantation, above Elton, where the bank is now caving. The amount of work that will be required here cannot be determined until the caving shall cease for the season—for there is a mile, more or less, exposed—but probably an amount equal to that at Elton, last season, will be sufficient—say twenty-seven thousand cubic yards.

The work done at Lake Providence last season seems to have been sufficient, for there is no immediate danger there.

The work done at the Bass crevasse stands well, but above the small connection levee, near the Deason house, the bank is caving, and there is a prospect of a considerable work being needed, to

complete the line of the Bass levee as formerly located—say thirty thousand cubic yards.

The next place where there is an absolute break is on the Stamboul plantation, which we called last season Wilton No. 1. This break may be patched up with say ten thousand cubic yards, but the connection between the Morgan levee and Transylvania levee should be built as early as possible, which will make this point safe for years. This levee, which should be known as the Stamboul levee, instead of Wilton No. 1, will require one hundred thousand cubic yards.

A small work known as Wilton No. 2, that was built by Colonel Buckner and others, answered the purpose admirably the past season, but it must be raised if it is to be adopted.

At this point a proper location is to connect the Goodrich levee with the levee at the Morgan house.

The Savage levee contracted for last season has not yet been completed, though it was sufficiently high to protect the country from overflow. The projected location of this levee terminates at the Goodrich levee, and should be constructed at an early day. The connecting levee between its present terminus and the Goodrich levee is very defective and low, and there are actual breaks—one very near the Illawarra house that will have to be closed, even if the whole line cannot be built. Fifteen thousand cubic yards will complete the Savage contract and close the breaks; but to complete the levee on the full location will require one hundred thousand cubic yards.

Below the Savage levee there are two breaks, one at the Bell plantation and one at Newman's, to close, which will require ten thousand cubic yards of earth, but this line of levee, for a mile in length, is in dangerous proximity to the river, and should be made safe at an early day, which will require one hundred thousand cubic yards of material.

The next break is the well known Hawes Harris crevasse, which extends from the Henderson place to the Terrapin Neck cut off. I gave as much attention to this work as was possible in the time, and I now think that the work required here will not be of the magnitude that was supposed last season, for the river, after passing the cut off is flowing eastward a violen[illegible]e hundred and two, and large sand bars are formed from the [illegible] off nearly down to Omega. Should

his state of things continue, the work on the Harris break alone and two patches at Nolan's and Miller's—say one hundred and seventy-five thousand cubic yards—will make a good levee from the Henderson to the Buckhorn plantation. I must again request authority to have a thorough survey of the Terrapin Neck and Davis cut-off made for future information of the board and engineers. I will refer to this matter again when I reach the Davis or Palmyra Bend cut-off.

Having reached the Buckhorn plantation, I found rapid and great changes in progress. The levee authorized at this locality last season was commenced on a line located by myself, from the town of Milliken's Bend to lower angle of the Omega levee; but the urgency of the lateness of the season compelled the contractor to abandon my line at the Buckhorn plantation, and build a small connecting levee terminating at the Buckhorn house. In consequence of the change of current around Island 102, the river is directed against this exposed point, and is caving the bank away at the old levee. This necessitates the completion of the Morancey levee upon the line located by me, and, if it be possible, the raising of the whole line to a proper grade. This will require one hundred thousand cubic yards of earth.

This same change of current is causing the river to encroach rapidly from the town of Milliken's Bend to Island 103; but there is no immediate danger in this distance, though there will soon have to be a new levee the entire length.

The work built at Duckfort is in good order, but there is an unusual cavity in front of the levee, which looks as if it may *bore* into that levee, if the currents do not change.

At Young's Point, the levee noted as "going," in the examination by the Board, is now gone, from the timber to the new levee at the point, and one hundred thousand yards are needed to close the crevasse, and one hundred and fifty thousand yards will be needed to protect in a proper manner the railroad and the great interests at stake below this point.

The Delta levees are still as we found them last season, and they still require one hundred and eighty-seven thousand cubic yards.

The levees are now good down to Castleman's Landing, where begins the Diamond Island Bend crevasse, which may be said now to

extend from Castleman's Landing, now Dunn's woodyard, down t
Sargent's Point; for what is not gone is fast going, and the maximu
work mentioned in my report of January 4 will be required, say fou
hundred and fity thousand cubic yards.

We now reach the Davis or Palmyra cut-off, and the crevasses
Tensas parish, known as the Point Pleasant, Wilson's, Brown'
Hardtimes, Disharoon, Hardscrabble and Bondurant, which, in t
aggregate, present a gigantic work, as the accelerated current pr
duced by the Davis cut-off is changing the whole line of the riv
from Castleman's Landing to St. Joseph. Before intelligent loc
tions and calculations are made in this neighborhood, it will be nece
sary to make the thorough survey which I was directed to make
the last meeting of the Board, but which sickness and a want of su
ficient assistants has prevented, but which will be made at an ear
day. I will now place the work from Point Pleasant to the Coff
Point levee, that will close crevasses, at two hundred and fifty tho
sand yards, and the work from Coffee Point to St. Joseph at
additional two hundred and fifty thousand cubic yards, with a p
sible necessity of constructing a line the whole distance in a f
years, as the currents below the cut-off may change.

The next crevasse is the Kempe crevasse, upon which I have m
a special report this day, which shows that it will require three h
dred thousand cubic yards to complete the line to Cannibal Isla
which will soon be necessary, as the caving may drop down stre

The levee at Waterproof is caving very fast, and from the foo
Cannibal Island to the Duncan Point levee there is no safety.
estimates of last season are still proper, say ninety-five thou
yards for temporary, and two hundred thousand yards for perma
work.

The Marengo levee is not yet complete, but will be under
contract of last season, and therefore will not be included i
report.

The Glasscock Island Bend levee is the next opening. This
was not completed last season, and the contract was declared
feited. The balance of the former estimate will complete th
located and contracted for; but below the Glasscock house the
been great caving of the bank and levee, down to the Brabson
and there will be needed fifty thousand cubic yards of earth to

this break, and the proper work from Mill bayou, to the same line will contain three hundred and fifty thousand cubic yards.

I did not have time to examine the levees at Union Point and Black Hawk, but there has been but little change there since my last report; there is a question about the proper termination of this levee in this neighborhood which I would not be able to express an opinion upon without a thorough survey, for Red river approaches so near, at the bayou cut off, that levels should be run, connecting the banks of the rivers, to decide where it may be necessary to levee both or neither.

I estimated before it would require one hundred and fifty thousand cubic yards to close the crevasses in this neighborhood, and I now report the same figures.

The above and foregoing embraces the work to be done in the fifth levee district. That to be done in the first and second district will be made in separate report.

Respectfully submitted,

Your obedient servant,

M. JEFF. THOMPSON,

Acting Chief Engineer.

A true copy:

R. D. MITCHELL, Secretary.

ENGINEER'S OFFICE, BOARD OF PUBLIC WORKS,
NEW ORLEANS, October 26, 1869.

Hon. MARTIN FLOOD, President of the Board of Public Works:

HONORABLE SIR—In my examination of the levees of the second district I find that the line extends from Red River Landing to Fort Jackson, on the Mississippi river, a distance of two hundred and seventy miles, and from Red River Landing, by the Red river and Atchafalaya to Bayou Alabama, a distance of fifty-two miles, and on both banks of the Lafourche, from Donaldsonville to Rémont, a distance of seventy-four miles—or one hundred and forty-eight miles of levee.

These lines of levee were continuous in 1860, though liable to crevasses every great flood; but the close of the war in 1865 found them so broken and decayed that many persons, in despair of their

renewal, thought of abandoning the levee system. The work renewal was commenced under great difficulties, and was carried through many mishaps, partly by the Levee Commissioners partly by private enterprise, until the season of 1868–9, when y honorable Board commenced the works, and the building of Gr Levee, in Pointe Coupée parish, under your auspices, completed restoration of the line on the Mississippi river. The levees on Ba Lafourche are again continuous, and those on the Atchafalaya be to regain their lost ground.

During the flood of the past season, the following named crevas occurred:

At Morganzia, width thirteen hundred feet, depth of water ten f

At Hermitage, width three hundred and eighty-seven feet, dept water ten feet.

At Romans', width eight hundred feet, depth of water eight f

Also, at Gaudet, on the Lafourche.

These crevasses remained open until low water. There was a crevasse in the parish of St. John the Baptist, which was cl immediately; and there were other narrow escapes. The work quired to repair these breaks are all under contract, and in loca them, as well as all other works in this district, I have adopted lines and sections as will be substantial and last for many years, a statement and description of the work done last season wi found in my report to the Board, dated ————, 1869, a of these works were successfully completed, and are still effecti

It is the fashion now to say that nothing has been done, or will be accomplished by the State; that the few levees built hav washed away, and that complete security from overflow is beyon means or resources of the State. A study of the *facts* will sho the complete protection of the second district is already in our and that, after one or two years more, we shall have to provid the expenses of wear and age; for, with careful guarding and a per centage to rebuild with, as the river encroaches, the secon trict will be as safe as Holland.

The proper plan is to build works that will stand for a twenty-five years, and then we shall have only four per cent. line to renew each year; and with special attention to the larg costly levees—such as the Morganzia, the Chinn & Roberts

Hickey, the Roman, and others of that kind—possibly this per centage may be reduced.

The grade or crown of the levees is now being established in this district at an elevation of not less than two feet above high water mark, but as the levees above are completed and extended, this grade will have to be raised until it shall attain—

From Red river to Baton Rouge, four feet above high water mark; from Baton Rouge to New Orleans, three feet above high water mark; from New Orleans to the gulf, two feet above high water mark; at head of Atchafalaya, four feet above high water mark; at Bayou Alabama, six to eight feet above high water mark; at head of Bayou Lafourche, three feet above high water mark; below Lockport, five to six feet above high water mark.

These figures are taken from the report of Generals Humphreys and Abbot, based upon their careful surveys and comprehensive analysis of facts. I would propose that the raising of the grade should be the gradual but constant work of years; but it is very important to attain the proposed grade of two feet above the known high water marks as soon as possible. Whether this can best be done by the contract system, or by having a contingent fund and force to repair, raise, trim and grass the levees, I leave you to judge; but I would suggest that, as the work required is so disconnected and indefinite to specify or measure, and requires so much care in its execution, that the contingent fund and force will be true economy.

I would ask that provision be made for a force of men to be distributed over the levee during high water, with means to concentrate on threatened points, that crevasses may be prevented or checked, or that the Legislature be petitioned to extend the powers of the Board of Public Works to authorize you to call out the hands in case of an emergency, as was done in the past, and to pay said hands out of a contingent fund.

I must confess to an imperfect examination of the Atchafalaya levees about Bayou Marion, and an almost neglect of the Lafourche levees, but my familiarity with them before the war will enable me to soon learn their present condition.

A recapitulation of my various special reports shows that there will be required between the mouth of Red river and Fort Jackson, on the right bank of the Mississippi, the following amounts of earth,

to raise the old levee to a proper grade and build such new as are needed, to place the whole line on a twenty-five year

	MILES.	RAISING LEVEES.	NEW LE
In Pointe Coupee....	37	263,000 cubic yards.	770,000 cu
In West Baton Rouge.....	39	306,000	311,600
In Iberville, right bank....	27	230,000	156,900
In Ascension, right bank	18	155,000	104,000
In St. James, right bank...	21	182,000	219,000
In St. John, right bank....	15	128,000	46,500
In St. Charles, right bank.	18	150,000	112,200
In Jefferson and Orleans, right bank.	28	240,000	212,000
In Plaquemines.....	67	400,000	200,000
Total for 1870 and 1871....	270	2,054,000	2,132,400

With an average thereafter, as the river may encroach, o miles of new levee each year, which will be about 500,0 yards.

My estimates upon the Atchafalaya show that the right l quires 26,684 lineal feet of levee, which will contain 148,5 yards, and the left bank requires 4910 lineal feet, which will 41,318 cubic yards.

In conclusion I would remark that labor seems to be abund season and the contractors have fine forces at work on the the levees in the second district which were let.

Respectfully submitted,

Your obedient servant,

JOHN V. VAN PELT,

Engineer Second Di

A true copy:

R. D. MITCHELL, Secretary.

ENGINEER'S OFFICE, BOARD OF PUBLIC WO
NEW ORLEANS, LA., October 26,

General MARTIN FLOOD, President Board of Public Works:

GENERAL—I resumed the examination of the levees on t teenth instant, by commencing at Baton Rouge and proceedi the left bank of the Mississippi river, through the parishes Baton Rouge, Iberville, Ascension, St. James, St. John Ba Charles, Jefferson, Orleans, St. Bernard and Plaquemines, w embraced in the First Levee District. For four miles so

om Baton Rouge, I found the levee in good repair and safely ated, but there are a few points that are too low which should be ised to a proper grade by the planters interested, as the work is o light to be let by contract by the Board of Public Works.

At the Hickey plantation, now leased by Harris, I found the first ngerous levee, which has been heretofore reported upon, and is w advertised to be "let." The old levee here has been worn by the ves and wash of steamboats until it is almost entirely gone, and as only prevented from breaking by the strenuous exertions of the anters during the last high water.

The work required here will be a new levee, about 4400 feet in ngth, averaging 6½ feet high, which, with the cross section adopted, ll contain about 22,000 cubic yards. This work will lie between ations 200 and 260 of Green's survey of 1866.

The levee needs slight repairs to station 280, where there is a ngerous place which will require a work of 700 feet in length, and ntain about 4500 yards; this is known as the Ramsey place, and om station 293 to 310 the levee is picketed and in a weak and dan- erous condition, and, as the adjoining land is uncultivated, and, nsequently, the levee not watched, there should be a new levee ilt this whole distance at an early day, and should be strengthened once. We now pass round the Conrad Point, with a good, new vee, and find the next weak point at station 414, where a few hun- red feet need strengthening, and at station 427, in front of Mar- nez, a point needs strengthening. Each of these, I presume, will e done by the planters when the other works are done by the State. he levee is safe to station 444, and from this point to station 478 he levee is mostly in a miserable and dangerous condition, the reater part of the distance being uncultivated land, and the levee eglected. It will require 19,000 cubic yards to make this portion f the levee safe.

The levee is now in good repair from station 478 to near the welfth mile below Baton Rouge, where there is 2400 feet of levee hat has been patched and picketed, and is only safe while the resent energetic planter has care of it. He proposes to still main- in it as it is, but it should be made safer than it is, or a new levee ould be built, and, therefore, I would recommend that it be adver- sed as the other levees have been, and that sufficient work be done

to insure its safety. It will require about 15,000 cubic yards to make a new levee.

We now reach a work that is advertised, to wit: the Walker levee. There is an actual break at station six hundred and eighty-seven, and the work proposed here is either to patch this corner with some 5000 yards of material, or connect the angles at six hundred and seventy-six and six hundred and ninety, which will be about 1500 feet, and contain about 15,000 cubic yards.

This brings us to the lower line of the parish of East Baton Rouge and a recapitulation of the works show a requirement of 76,10 cubic yards to place these levees safe for a number of years.

In the parish of Iberville, I found no levee in a dangerous condition until I reached St. Gabriel's church, in front of which, and f several hundred feet southward, the levee is old and leaky, an should be moved or repaired; and at Brun's store there is neede 1000 feet of high levee, say 5000 cubic yards, or 10,000 yards i both. From this point down to Point Clear, there were several ne levees built last season by the planters, which have never be reported to this office. These are mostly too small in section a too low, but are well located, and, when raised, will be efficie The cost of building these works will be claimed from the Boa but my time was too limited to allow me to estimate the quantiti in them, and it will be soon enough after the claims are made a entertained.

At the Point Clear plantation there is a dangerous piece of lev which requires a work of 2400 feet (containing 15,000 cubic yar to make safe. The ownership of this plantation is in dispute, a therefore nothing will be done here unless the Board of Pul Works has it done.

Across Point Clear the levee is safe, but when the line pas General Camp's residence, we find a levee more than forty years o which is getting very weak and leaky, and requires moving, ren ing and strengthening for several thousand feet, which work will t 12,000 cubic yards, and reach to the lower line of General Cam plantation. On the line between Dupuy and Walsh there is a pi of picketed levee that is in a dangerous condition, and there sho be five hundred feet of levee, containing 4000 cubic yards b This is all the work required in Iberville parish, except a piece

crosses the line of Ascension and, will be estimated in Ascension, and a recapitulation gives 41,000 cubic yards for the left bank of Iberville parish.

At the line between Ascension and Iberville parishes there is a large cave in the bank and in imminent danger. At this place a new levee is required from the angle at Poche's house down to station 4404, on the Burnside plantation, known as Hard Times. This levee will be 2600 feet long, and contain about 14,000 cubic yards.

The next dangerous places are on the Mount Houmas plantation, one just above the residence and the other near the lower line—15,000 yards of earth will repair these places. I now reach the Kenner levee, on his Ashland place, which has been advertised to let. This will contain 10,000 cubic yards.

The next work occurs on D. Landry's plantation, and should commence at his upper line, and extend to the levee below and near his sugar mill, and portions of this new levee should be completed, as it was received by the former Board of Levee Commissioners in a very unfinished state. The work now absolutely required to close openings is advertised, and known as Landry No. 3, and will contain about 20,000 cubic yards.

The levee in front of the small proprietors below D. Landry and above T. Landry needs attention and should be worked, but a new levee is not required at present, and on the T. Landry place, the levee on the upper end is very weak. Below the house, a new levee is required, which is known as Landry No. 4, and will contain 5000 cubic yards. This continues the new levee built by Ward to the batture near the house, and at the lower line of this plantation a work of five hundred feet in length must be built, which will contain 3000 yards.

The next weak point is at Marchand's, where the levee has been patched so often that there should be a clear line from station 3528 to 3638, or 1000 feet of small levee—say 5000 cubic yards.

We now reach the Orange Grove plantation of Mr. John Burnside, on which there is much very poor and dangerous levee—from station 3576 down to 3556, and from 3520 down to 3490—making, in all a distance of 5100 feet of levee, containing 38,000 cubic yards, being an average of seven feet five inches in height.

This brings us to the lower line of the parish of Ascension and

shows a total for this parish of 110,000 cubic yards, to put the leve in good order.

I now enter St. James parish, and find the first weak point a Hagan's, near his warehouse. This work has been advertised an staked out, and will contain about 5000 yards.

From the small church called St. Mary down to Moore's saw mil the levee is very old and weak, but with such repairs as the peopl can put upon it, it will be safe; but there should be a new levee thi entire distance, say from station 3316 to 3374, or 5800 feet of foo levee, containing 30,000 cubic yards.

At the Webler plantation the levee is too close to the bank an should be rebuilt from station 3126 to 3140, a length of 1400 feet seven foot levee, and contain about 9500 cubic yards.

From 3056 to 3080 the levee is in bad order. This is in front Cranie's plantation. This should be built, and will require 2400 fe of seven and a half foot levee, and contain 17,000 cubic yards.

At and near Jacob's saw mill the levee needs large repairs, or new levee. This work will contain 11,000 cubic yards, being 200 feet long of six and a half foot levee.

Just below the Convent of the Sacred Heart there is a dangerou place, which will require a work of six hundred feet in length small levee, which contain about 3500 cubic yards.

Just above the College there is another dangerous place, near th brick yards. This will require 1000 feet of small levee, and conta 6500 cubic yards.

The levee is safe from this point down to the line of Poche Brother and Reinnie, where a work of five hundred feet, containi 2500 cubic yards, is necessary, and a few hundred feet below th is a dangerous place in Gill's Levee that will require an equal amou of work; and below, at Scheixnaldie's place, the levee is in b repair, as is also the case in front of Dossat & Heiss' and Mrs. Jo son's, where seven hundred feet should be rebuilt—in all 6000 cu yards. The new levee on the upper end of the Shepherd plantat is too low, but I did not estimate the quantity necessary to rais to a proper height. The levee in front of the Duplantier planta needs strengthening or rebuilding to the amount of 6000 c yards.

This takes us to the line between the parishes of St. James

St. John Baptist, and shows that the aggregate work in St. James, left bank, is 100,000 cubic yards.

In St. John the Baptist, the first defective levee is in front of J. W. Godberry's plantation, where it needs strengthening badly, being almost worn away or destroyed by craw fish, and the planter should put it in repair. These same remarks apply to Watson's levee and the levee near the school house. These will require 12,000 cubic yards. Below the school house there is a new levee, just finished by Mr. Carbon, which extends to the angle at station 2005, which, I suppose, will be brought before the Board. This new levee is about 1200 feet long, but I did not measure its contents. Just below this plantation there is needed a new levee, some seven hundred feet long, (in front of some small proprietors), which will contain about 4000 cubic yards; and still below, at the steam mill, the levee needs working or repairing.

On J. Godberry's, Jr., plantation there is a dangerous spot, that 1000 cubic yards of earth would make safe.

At Beyer's place there is a dangerous piece of levee, and there is required a work of 1200 feet in length, seven and a half feet high, which will contain 10,000 cubic yards.

At the lower line of the Boudousquies' plantation, now owned by Leon Godcheaux, the river is encroaching in a peculiar manner, and has cut in several hundred feet in a circular manner, and threatens a church now being built near it. There is needed here a new levee about 1000 feet in length, seven feet high, which will contain 7500 cubic yards.

From station 846, at Madam V. Duhen's, down to station 800, or for 4600 feet, except a short piece of new levee in front of the blacksmith shops and store, is in a dangerous condition, and should be built. This is light work and the whole will contain about 11,000 cubic yards.

In front of the Delonde plantation, now worked by Joubert & Co., there is a small new levee of considerable length, which does not appear on our maps. It connects with the levee across the Bonnet Carre point, and I had no means to estimate the contents.

From Labranche's to Hollingsworth's is the Bonnet Carre point levee, in front of which the batture extends for nearly a mile. This levee is in bad repair in places, but the riparian proprietors propose

to build a new levee around the batture, and should they r
State had better build these than repair or replace the old l
the ground is much higher.

At Mr. Loque's there is a dangerous point, but he will r
secure rather than have a new levee located. From this poin
lower line of the parish of St. John Baptist, a recapitulation
this parish to require 50,000 cubic yards of work, on the lef
to make it secure.

In the parish of St. Charles the first weak point I found is
connecting levee, between two new levees on the Ganathean
tion, between stations 1432 and 1446. This levee is not now e
to the wash of the river, and it seems high enough, but is com
honeycombed with or by craw fish, and the owners of the ad
plantations fear that it may break. It would be advisable
early day to build a levee from the angle at station 1430 to th
at 1454, which will require a work 2000 feet long of eig
levee, and contain 20,000 cubic yards. This is the most dan
place in a long distance, as the levee is high, and being adjoi
the great Bonnet Carre crevasse, it would destroy the sam
country that was destroyed by that crevasse, were one to occu

From the front of the Massicot plantation to the Bust planta
that is from station three hundred and eighty down to thre
dred and fifty-six—the levee is weak and in bad order, being
rice troughs and cuts, and the adjoining proprietors shou
cautioned to close these at once, and a new levee should be bu
entire distance. This would be 2400 feet long, of small leve
contain 10,000 cubic yards.

There is a dangerously exposed point near the upper line of
Hermitage plantation, but 2500 yards will make it safe; in fr
the residence on this plantation there is 1500 feet of very dang
picketed levee, which should be strengthened or rebuilt, and, i
the levee along the whole front of this plantation, except a few
is insecure; it will require 4000 feet of six foot levee, which wi
tain 20,000 cubic yards to make this line safe.

On the next plantation, which is Mrs. Oxley's, there is 1600
dangerous levee, which should be rebuilt at an early day; th
require 8000 cubic yards.

On the Good Hope plantation, of Pinkard's, there is needed

feet of new levee, in front of the residence, which will contain 6300 cubic yards.

On the La Branch plantation, now owned by Sarpey, there are two dangerous points, one just above and the other just below the residence. They will together contain or require 11,000 cubic yards, and connect good, new levees. Near the lower line of this plantation the levee needs repairing.

On the McCutchen, "Ormand" plantation there is a caving bank, which has approached the levee at two points, and 1500 feet of new levee should be built at an early day, and a new levee from his upper line to below this caving will be required in a few years. The work now needed will contain 5300 cubic yards.

Immediately in front of the Soniat residence the levee is picketed and weak, and it should be strengthened, or a new levee 600 feet long built to connect the new levees above and below. It has been dangerous for several years. It will require 4000 cubic yards to build a new levee.

On the plantation now owned by Major Potts there is a dangerous piece of levee, and there should be 2000 feet of new levee built here. This will contain 11,500 cubic yards.

At the Bisland place, owned by General Patterson, there is a dangerous point, which was also so last year, but the manager of the estate has agreed to back up this levee and make it safe. This brings us to the new levee built last year and finished, in St. Charles parish, the recapitulation of which amounts to 95,000 cubic yards to place it safe for years.

We now enter Jefferson parish, and find just below the line a weak place on Mrs. Kenner's levee, just adjoining the Fortier levees, and this work is the same recommended last season to connect two new levees. It will be 1400 feet long, and contain 20,000 cubic yards.

The next point to be noted is the Sauvé levee, which is already advertised, and will contain 100,000 cubic yards.

There is a point in front of the residence on the Mason plantation which seems very dangerous, though I am assured it has been maintained for many years. I certainly would not trust it, and would ask that it be backed to make it safe from a cave, or that a new levee be built some 1000 feet long at this place—5000 yards.

These three points are all that I saw in Jefferson, left bank, down

to Fort Parapet, from whence to the line of St. Bernard par
must trust the corporations of the cities of Orleans and Je
and the Ship Island Canal Company, unless the Board cons
within its province to protect the rear of these cities from o
from the Lake Pontchartrain, which many persons think they
do—131,000 yards.

On Thursday, the twenty-first instant, the examination of th
District was resumed at the line of St. Bernard parish.

The first place that needs work is just above the Battle
monument, where a small job of 400 feet, containing 3000
should be done; and just below, at the Battle Ground coffee
there is a work of similar extent—3000 yards.

The next place is the Villere crevasse, which is now adv
and which will contain 10,000 cubic yards.

Upon the Walker plantation there is a long line of very wea
levee that would be more troublesome to repair than rebuild.
extends 4000 feet, but will contain but 14,000 cubic yards, a
better be built during this season.

On the Story plantation there is a dangerous piece of leve
station 3132 down to 3100, except a short piece at the woody
the lower end. This should be built, and it will contain abou
cubic yards or 10,000 cubic yards, as it may be located.

The levee is now good down to Knapp's plantation, where t
an unfinished levee, commenced some years ago, which will
2500 cubic yards to complete it.

The next weak point is at the Merritt plantation, now ow
the Mississippi and Lake Borgne Canal Company. This l
half caved in, and should be built early. There should be 20
of levee built here, containing 6000 cubic yards.

The next work is on the Poydras plantation, belonging
John Davidson, and is already advertised. The amount of thi
will depend upon the discretion of the Board, as a small run
will be safe for a few seasons. But two new levees, conn
three new levees, and making a long line of safe, new levee
be recommended. The small work will contain 8500 yards,
complete work 16,000 yards, making a total for St. Ber
57,000 cubic yards.

We now reach the Carnearvon and Morgan levee, built last

in Plaquemines parish. Either from some error or misunderstanding of mine, or the contractor, this levee is a foot too low, and should be raised to the proper grade. The adjoining old levees are also too low, from which I took my grade. These levees will be raised to a proper height by the owners of the land for the same rate the adjoining levees are let at, and I ask permission to include it in them.

The next dangerous point is the levee now advertised as Conne's. The work should commence at station 2711 and go down to 2684, or 2700 feet in length, as the adjoining sugar interests are very large that are endangered by this one weak point. Yet there are small proprietors at this levee, and legal obstructions may be interposed to prevent the full location, and, therefore, special discretion must be exercised here. The quantity in this levee is 15,000 cubic yards.

The next weak place is at Kernechan's plantation, where 800 feet of six foot levee should be built at an early day, containing 5200 cubic yards.

The next work needed is at the Old Court House, where 2000 feet of light levee should be built, to contain 5300 cubic yards; and above, at Reggio, a 3000 feet levee, containing 15,000 cubic yards.

At the Madame Verbois, or Greenwood plantation, there is needed 1200 feet of levee, which will contain 3500 cubic yards.

The next dangerous place is at the Belair plantation, of Diamond & Lally, where there is required some 3000 feet long of six feet height, which will contain 12,000 cubic yards, and a piece, 2000 feet, of levee, which will contain 8000 cubic yards; and on the Fairview plantation, belonging to the same parties, there are two short pieces which will contain 8000 cubic yards.

The next weak levee is at Halley's, where a new levee is required, extending into the Union plantation; this will be 1400 feet long, of levee, and contain 5500 cubic yards; and crossing the line of the Union plantation, and Lassep's, there is needed a new levee, 2200 feet long, six feet high, containing 10,300 cubic yards.

On the Lassep's plantation, below the residence, there is a work advertised, which will be 2700 feet long, seven feet high, and contain 18,600 cubic yards.

From near the lower end of Lassep's plantation, down to the Wetherstrand plantation, now owned by G. Huntington, there is a small defective levee, that is not worth repairing, and therefore I would recommend a new levee for this entire front, which will be

6600 feet long, averaging four feet high, and containing 16,000 c yards. Below this, on the Huntington place, there is another w about 2000 feet in length, and two other small pieces, which contain 11,000 cubic yards.

I must ask the Board to take some action in regard to cra holes and rice-flumes, that the old law regulated, but which now planters seem to utterly disregard.

I did not go below the Huntington plantation, as the levees very small, and the country protected is only one plantation to levee, and not like those above, where the failure of one levee flood many plantations.

For the condition of the levees in the second district, I refer to the report of Mr. John V. Van Pelt; and for the fifth district my report of the fifth instant; and these three give the exact co tion of the levees on the Mississippi river, from the Arkansas lin the lower end of the levees, and a recapitulation shows that it require 4,242,000 cubic yards of material to close existing crevas and protect imminently dangerous points with works up to the grade, that it will require 5,218,000 cubic yards to place the wh line in repair up to old grade, and also, that 2,000,000 cubic ya must be built to protect lands now in cultivation, leaving open Ashton and Diamond Bend crevasses, and the small works t strengthened and protected by the planters interested in each.

Mr. Peeler is now engaged in examining the levees on Red r and Ouachita, and those of the Lafourche, Teche and other stre will soon be reported.

You will perceive by comparing these figures with those in the port of Generals Humphrey and Abbott, of the United States E neers, to the Secretary of War, dated February 20, 1869, that th is comparatively but a slight difference, the excess of mine being casioned by the wear of the waters since their report, for, as have estimated forty cents in cash as the probable cost of the w and $800,000 as the amount needed to close crevasses—this m 2,000,000 cubic yards (including Ashton and Diamond crevasses, w were small when examined by them). For perfecting the level Louisiana to the present grade, they estimate $2,530,000, or 6,325

cubic yards, which is an excess over my estimate, and to complete the levee system, when the States of Arkansas and Missouri and Mississippi, shall build all their levees. Generals Humphreys and Abbot estimate the cost to Louisiana to be thirteen millions of dollars, or 32,500,000 cubic yards.

The magnitude and importance of the levee system can only be appreciated by those who have studied the subject, and I cannot better illustrate this fact than by quoting the concluding paragraphs of the report of General Abbot, above referred to:

He says: "The levees contemplated in these estimates are large—much larger than residents of the alluvial lands in general anticipate; but, in the language of the report of 1850, they 'would not, when greatest, exceed in magnitude those on the right branch of the Rhine, below Arnheim, which protect the most fertile part of Holland. These levees are exposed at high water to as strong a current as that of the Mississippi in flood, and, also, to the destructive effects of ice. But the occurrence of crevasses such as take place with every great flood of the Mississippi are there unknown. Should they happen, the ruin of a large part of the most productive portion of Holland would follow, as extensive tracts protected by the levees are lower than the surface of the sea, and their reclamation from overflow could only be effected by a drainage similar to that which has been applied to the lake of Harlem. The supervision, watching, and repair of these levees is costly but effective and remunerative. The levees of the Mississippi, as now existing, are trifling compared to the interests they protect, and to the levees of the delta rivers of Europe—the Po, the Rhine, and the Vistula.'

"The cost of the Mississippi levees, as indicated in the foregoing table, would not be trifling, but it should be remembered that the figures are based upon present inflated prices.

"The project can hardly be considered as beyond the limits of judicious investment, when it is remembered that the amount actually expended on the Erie canal exceeds $33,000,000, and this, too, mostly paid in gold. A slight idea of the profits that may be anticipated, as compared with the necessary outlay, can be formed from the following facts:

"The total area of the bottom lands is about 32,000 square miles, of which a mere narrow strip along the main stream and its prin-

cipal tributaries and bayous has been heretofore open to cultivatio
Protected against the river and properly drained, this would rend
available at least 2,500,000 acres of sugar land, or more than doub
the amount heretofore planted; about 7,000,000 acres of the best c
ton land in the world, capable of yielding a bale to the acre, and a
less than 1,000,000 acres of corn land of unsurpassed and ine
hausible fertility. An expenditure of about three dollars to t
acre (present prices of land actually made cultivable by the leve
would thus be sufficient to reclaim them from overflow. Suppos
the cotton lands alone to be under cultivation, a tax of one cen
pound for one crop would nearly pay the cost of the levees of t
entire valley." Every argument used by General Abbott in the fo
going paragraphs, for the whole valley, applies with quadruple fo
to the State of Louisiana for her proportion of overflowed lands
the length of her levees is so much greater than the other States.

Respectfully submitted.

Your obedient servant,

M. JEFF. THOMPSO

A true copy:

R. D. Mussett, Secretary.

Engineer's Office, Board of Public Works,
New Orleans, December 31, 18

R. D. Mussett, Esq., Secretary Board of Public Works:

Sir:—In pursuance of orders, it affords myself of the work a
say for reclaiming lands and benefiting navigation at the se
mouths of Red river, I beg leave to present the following:

On my arrival in Shreveport and stating my errand, I was
waited upon by committees of many parties and neighbo
delegations, who seemed to have interests so conflicting that
made necessary for me to go into a general examination of the
area, which caused me great delay and in which I was assisted
Dr. Hamilton (county surveyor and commissioner for this di
with Messrs. Howell, Robson, Mr. Williams and others, who
hope would hardly agree with me in the plan for which I ask
final instructions.

Wherever the Red or Red river may have been, there

doubt but at this time its channel is well defined in low water, and can be made to stay in its place. The river on the Texas line is a wide, clear stream, with caving banks down to the end of the raft, at which point all the trouble commences, the raft throwing the water out of the channel, when it flows over the surrounding country in a parallel line with the river, returning whenever the high land dams or forces it together, when it forms a side channel, and by it returns into the river bed. The same action has undoubtedly occurred in many places lower down the river in times past, or the river has broken through its banks, making an entire new bed, as when it changed from Cane river, as it is now called, to the Bon Dieu Rigolets, forming the several channels which are now so difficult to define as navigable streams.

The raft has, however, disappeared or been removed from a great portion of the river which it formerly occupied, and no trouble will now be experienced in reclaiming the lands below the high lands on which Albany is situated, on the right bank, and all the lands below Hurricane Bluff on the left bank, from which points the channel has become filled up and made smaller by deposits of sediment and raft together, while in the several clearings sufficient water has never returned to the old channel to produce caving banks, and to cut it out. This narrow channel continues to Loggy Bayou, from which point the river has caving banks, and will be sufficient to carry all the water flowing into it.

The action of the water in its course outside of the channel is simply to flow over or irrigate the land; for example, as the water leaving the bed of Red river at Willow Chute during a rise, will flow over land and through bayous and lakes, until it reaches Lake Bisteneaux, where it is gathered together, and runs back through Loggy Bayou and Couchatta Chute into Red river, flowing slowly over this wide valley it perhaps reaches Lake Bisteneaux and runs into the river, after the rise which produced it has passed, and another rise has reached the mouth of Loggy Bayou; whenever this event occurs, there is an overflow below, the same can be said of all the outlets into valleys where the water is eventually returned into the river.

Throughout this Willow Chute valley the water marks are from four to six feet from the ground, at places perhaps fourteen, the

water reaches the dep'h of four feet within two miles of Wil
Chute and continues from that to six feet throughout its wh
course until it returns into the river at Loggy Bayou, one hund
and twenty miles down the river, though the surface of the rive
this point must be at least one hundred feet below the surface of
river at Willow Chute.

This flow of water must be stopped if the land is to be reclaim
by a levee starting from Hurricane Bluff at the upper part of
valley, where the bluff or high land encroaches on the river,
continuing down the bank until it reaches the natural outlet of
valley at the lowest possible point on the river, which in this parti
lar example is Loggy Bayou, closing all bayous which may be
countered on the way, the principal of which is Willow Chute ne
ing about 2400 yards, and Macks Bayou needing about 1100 yar

This benefit may be still further extended by closing Loggy Ba
at Coal Bluff, clearing Couchatta Chute, and allowing the waters
pass down it when some thirty or more feet fall would be secured,
addition, to the waters of this valley.

From the high land of Couchatta Chute another levee should
started running down the river to the mouth of the Sabine, a d
tance of one hundred miles; below this on this side of the riv
further examination will be necessary to advise with certainty.

On the right bank the same course would be necessary levee
from the high land of Shreveport, closing all outlets or inlets, do
to the mouth of Bayou Winsey, or as improvement progresses
Bayou Pierre, just above Grand Ecore, a distance of two hund
and twenty miles, and from high lands of Grand Ecore, down
river to or near Alexandria, a distance of one hundred and twe
miles. The work should be carried on by making the levees on
side at the same time progressing, down the river.

Some portions of work have been done on each section of
here spoken of, as public or private interest served at the
Many isolated pieces of levee are situated on the line, doing no
vice for want of connection; others built by the State in fo
years, which seem to have been designed to last until some t
which governed their construction should have been worked ou
instance in which, as I was informed, water had never reache
foot of a levee, five feet high and forty feet base, and about 150

long, and which extended only across one property, forming no connection with other levees at either end, the neighbors considering there was no use for levees in the vicinity. All private levees, without exception, are too small, the greatest necessity only driving the people to an expenditure of money to secure their plantations, while many stand the overflow and plant afterward.

The objections to such leveeing as I have proposed are of various kinds, one of which, and the only natural one, is the necessity for a larger and deeper channel to hold the waters of the river. This objection, at present, is only tenable when used in connection with that part of the river between Shreveport and Loggy Bayou, where the water, having been taken to either side by outlets, has not had force or speed enough to produce caving banks on this portion—a caving being one of the necessities in this case—this must be remedied by cutting the trees on either bank, which have been left to protect them, and, with the assistance of the extra amount of water which, by leveeing above, would have to pass down the channel, would be sufficient for this purpose. Objections would be made by owners of lands bordering the river, but these objections must be overruled.

Another series of objections arises by shutting off the water from the different side sections of the valley, thus stopping the navigation of those bayous or old beds of the river running through them, seemingly to a large extent, but, there being but little or no real navigation, which should not depend on the water shed of its own section, and none which should stop such a large extent of country from being improved, it would seem that such objections should have but little weight. These objections will be raised too by those parties who seem to own the right to make public improvements on Red river, and its surroundings, irrespective of the people to be benefited, supported by a few persons who trade with isolated communities, situated on the high land bordering the valley, whose producing interests are comparatively nothing to the lands which may be reclaimed by the plan proposed, and by perhaps a few persons who live on the streams, on places so high that they are above any overflow known, and who do not care for the neighbors or neighborhood surrounding them, and do not care that the country shall improve, considering that an increasing population is a detriment instead of a benefit.

I am requested by many parties to ask the Board that a survey be made of this or that portion of the river, but as little can be known

by this process, will advise that a survey be made of the whole river, on each side, from Albany, on the right bank, and, in continuation, from Mack's bayou, on the left bank, down to the mouth of the river. By doing this and preparing sectional plans, and advertising the work by sections and parcels for the whole distance, the exact work necessary will be known to the planters and people on the river, and the places where such work should be first done, and by this means no misapplication of work or money will be made, as has been done in many instances. I advance these propositions because of the requests made, and there seeming to be a general desire among the planters to do their own leveeing if they could hope for future repayment by the State, by certificate of work done, from the Board or other manner, as may be determined; and, in some instances work would be done by planters, to protect their own property, if they were not afraid of neighbors, who would be injured by such work, if it were not continuous. I have little doubt all the work could be done, if once advertised, with the exceptions of the bayou and openings, on certificates—the parties waiting for an indefinite time for the money, or receiving commutation of taxes on account. A consideration of this question by the Board would perhaps lead to good results.

To carry out the plan proposed it may be necessary to procure an act of the Legislature and perhaps Congress, authorizing the closing of such bayous, old beds of the river, sloughs, etc., throughout the different sections mentioned, as may, in the judgment of the Board, be necessary—a question which I am not competent to decide.

As the water is now rising rapidly in Red river, covering such places as are considered of the greatest consequence, I do not deem it necessary to detail more work from my survey for that section of the country, than has already been presented in a sub-report to your office, until some general plan has been decided on.

In the section of (22 6-10) twenty-two and six-tenths miles, which I surveyed, there will be needed about 116,000 yards extra work to bring the crown of the levee to the proper height, six feet wide, with slopes of three to one and two to one, which I consider necessary with the soil of which the levees are generally made, averaging one cubic yard to the running foot.

The fall in the high water marks for 1869 for this distance

twenty-three feet, showing a fall of one foot per mile. The difference in fall of banks is nearly twenty-four feet, a little more than one foot to the mile, making the banks comparatively lower at Mack's Bayou than it is at Willow Chute. The details of this survey will be made part of office records.

Remonstrances and petitions in relation to various matters on Red river, which parties have promised to forward to me, not coming to hand, I shall make them the subject of a future report.

Respectfully, HENRY C. PEELER,
Engineer Board of Public Works.

A true copy:
R. D. MITCHELL, Secretary.

ENGINEER'S OFFICE, BOARD OF PUBLIC WORKS,
NEW ORLEANS, December 31, 1869.

General MARTIN FLOOD, President of the Board of Public Works:

GENERAL—In conformity with orders, I hereby make the annual report of the Engineer's Department of the Board of Public Works.

There has been no material change in the organization of the corps of engineers since my report of January 4, 1869, except that Mr. H. C. Peeler was added to the force on January 20, 1869, and on the sixteenth instant Mr. John V. Van Pelt and myself were confirmed in our positions as engineers—Mr. Van Pelt being assigned to the second district and I to the first district, to take effect on the thirty-first of December, 1869.

The annual report of January 4 was made in the midst of our levee building season, with the work just awarded and not fairly commenced, but I am happy to state that each of the works attempted were successfully completed, except a small portion of the Savage and Maringo levees (since finished), and the Glasscock's Bend Levee, where the contractors were unable to close the crevasse before the high water drove them from their work. Atl the works built are still standing, and were sufficient to accomplish the objects desired. You will find in the amount of cubic yards covered by the final estimate on each levee, an aggregate of 1,346,029 43 cubic yards of earth and 1,209,044 feet, board measure, of lumber used during the last season.

The great work of the year was the building of the Grand Lev
in Pointe Coupée parish, where we had the river to contend with fro
near the commencement of the labor, and at its full height when t
levee was completed.

The framing and sheeting of timber was done from the river si
from boats, and the earth taken from the land side was dumped in
the water to fill between the first protection ridge and the timb
work; and thus it was carried up in successive layers, and is as so
and compact as earth can be made. The timber work served
purpose admirably, for only a few "bulges" occurred from t
weight of the earth, and the general adjustment is still good, and,
course, stronger than last season. There has been nearly one fo
of sediment or batture left over the whole front, and in a few yea
the batture will be up to high water mark, and with proper care
keep the crown of the levee up to grade, this portion of Gra
Levee may be called "permanent."

On the seventeenth of May the old levee, connecting our new wo
with the Morganzia levee, broke from simple age and want of care
and for a time it was feared that our great work had been in va
and the country would be again deluged; but, fortunately, the c
vasse did not pass a greater volume of water than the natural dra
and swamp lands could carry off, and no material damage was do
An effort was made to preserve our new work from washing, w
perfect success, and a work was attempted to decrease the volume
water, with partial success.

For a full account of this crevasse, and the efforts made to con
it, I refer you to the report of Mr. Van Pelt, (dated July 2, 18
on file in your office.

About this time a crevasse occurred at the Hermitage Leve
West Baton Rouge, and soon after one on the Roman plantatio
St. James parish. Each of these did more damage than the Po
Coupée crevasse; but I am happy to state that there was no w
spread desolation, as sometimes occurs. Several small crev
were closed by the efforts of the planters; among them quite a
ous one on the Ashland plantation of Duncan S. Kenner.

After the close of the building season, which was about M
and the crevasse labor, which engaged us until July, the a
tion of the engineers was directed to the examination of the

and proposals for new work, under the resolution of the Board, dated July 6, and also to the examination of proposed locations and routes for levees. The results of these labors are on file, as special reports, and as they are interesting only to those already acquainted with them, I will not embrace them in this annual report.

The Board having made an agreement with Messrs. James, Buckner & Co., the lessees of the penitentiary, to build the Kempe levee, I staked out this work on July 19. This is a very important crevasse, from the depth of water that passes through it. It will be mentioned again in its proper place hereafter.

In July I spent several days reconnoitering the various proposed levee routes in Tensas parish, lying between the Palmyra Bend and Lake Bruin. Each of the routes shown me by the citizens has its advantages and disadvantages, on a larger scale than any proposed lines in the State elsewhere. The Lake St. Joseph route will be about fifteen miles of new levee, which will be safe from caving banks, but will throw out over forty thousand acres of land. The intermediate routes all present obstacles of a similar nature, and therefore I adopted the plan of saving as much country as possible, with due regard to the cost of the levee, and probable duration, and selected what is known as the river route, as will soon appear in my list of levees.

But little was done in August, but in September we took the field again, to make the low water examinations of the whole levees, which examinations have been reported in detail, but as this report gives perpetuity to them, I will append them as part of this.

After the advertising of the letting of the levees under the above mentioned reports, the Board determined that the work was too great to undertake under existing circumstances, and concluded to only "let" about two millions of cubic yards, to be used where it would do the greatest good. Upon a full consultation as to what must be done and what could be done, I reported to the Board that I would undertake the works above Red river at half the quantities estimated, if they would leave open the Ashton and Diamond Bend crevasses, for all the theories on hydraulics, and the actual experience of the past two years prove that the volume of water passing through the Ashton crevasse alone (which exceeds 100,000 cubic feet per second), will reduce the flood level five feet down to near Red river, where the same water returns to the Mississippi when the Red

river fills the Atchafalaya. I made various examinations and calculations on the subject during the past season, and though not in favor of outlets as a *permanent* plan, I do not question their utility in specific cases. In 1869 the water was much higher in Memphis and in New Orleans than it was in 1867, yet between the Arkansas State line and Natchez it was from five to seven feet lower than it was in 1867. The Haines, Harris and Kempe crevasses, each of which passed out a considerable quantity of water, will be closed, and some of the Mississippi State levees are being built, but I do not anticipate that the river will be higher from Ashton to Red river than it was last season (1869).

Upon these representations the Board authorized me to adopt a low grade, and I am building the levees above Red river at five feet above the high water of 1869, except the Wilson, which is only three feet above it, from reasons stated in my special report of the sixteenth instant. Below Red river the levees are being built on the most permanent locations and to full grade and cross section, and with proper vigilance there should be no crevasses the coming season, for all dangerous places have been examined and reported upon, and if the Legislature will give you the power, I will see that the repairs are made in the first district, and Mr. Van Pelt will see that they are made in the second, for when the levees now building in these districts are completed, the other works are comparatively light and the repairs not costly; whereas, a single neglect on an abandoned plantation may cause the destruction of millions of wealth and bring desolation among a portion of our people. The kind of work here proposed cannot, of course, be advertised at this late day, and therefore the Legislature should take early action on the matter. I would remark to the Board that each hour of my experience convinces me more fully that the true policy in locating levees is on a fair and intelligent equation between the cost to build, the interest on the cost for the probable duration, and the annual products of the soil that is to be protected; and that in many instances strictly temporary levees are true economy, and strictly permanent levees to protect the present cultivable lands of the alluvial districts to be an impracticability or an illusion. The splendid levees at Carson's and Goodrich's, in Carroll parish, are caving into the river; the same with the Bondurant in Tensas, and several others nearly as costly and many small works have proved to be entirely effective.

When the levees are large and costly great pains should be taken to obtain the most durable location in proportion to the amount invested, but all small levees can be liberally risked, when the land thrown out by a "permanent" location would produce a proper return to the wealth of the State, before a rebuilding would be necessary.

I have been influenced by these considerations in the locating of the levees this season, and I hope they will meet the approbation of the Board, and that time will prove the wisdom of this course, for as the building, rebuilding and repairing of the levees of the Mississippi will be as eternal as this mighty river is itself, all plans and speculations will be thoroughly tried in the course of time, and the experience and history of many generations will be recorded before PERMANENT works will be constructed—if ever. That a comparatively permanent line can and should be built there is no doubt, but this calls for a very large expenditure which our State may not now undertake, for it will be almost an entire rebuilding of the whole line of levees, and would throw out a large portion of the present valuable productive and tax paying lands; therefore, until such a time as we will be able to adopt such a plan, it will be necessary to connect with and continue the present lines of levees, and to repair and replace them as the exigencies occur.

Crevasses can be and should be prevented under the present system, by an exercise of *active* caution, if the authority or means are granted; and as no change of plans *can* be made this season, I would again ask the Board to apply to the Legislature for an extension of your powers to the repairing and protecting of levees during the coming high water, if not longer, either at the expense of the riparian proprietor, who has neglected his duty, or at that of the State, as may be best.

In a special report to the Board, dated March 5, I called attention to the fact that the valuable papers belonging to the State Engineer's office were burned or scattered at the destruction of the Capitol at Baton Rouge, and asked that means be taken to duplicate them, and there are but a few printed copies of the important reports of the Levee, Drainage and Swamp Land Commissioners of the olden time in existence, and I would ask permission to obtain duplicates of the valuable papers, and to reprint these important reports, that the present generation and immigrant citizens may have the benefit of

them. An appropriation by the General Assembly may be necessary to accomplish this object.

The engineers are now paying especial attention to connecting our levee lines by measurements, to the land lines and corners, so that the actual wear and tear of the river banks may be known in the future, that the effect of cut-offs and crevasses may be properly determined.

I would conclude this report by stating that we have now more than three thousand laborers at work on the levees, and I can see no cause why all the contracts let by your Board will not be completed in due time.

Respectfully submitted,

Your obedient servant,

M. JEFF THOMPSON,
Chief Engineer.

A true copy:

R. D. MITCHELL, Secretary.

...RK
...ARY
...AND
...NDATIONS

REPORT

N.Y. PUBLIC LIB...
FORD COLLECT...

OF THE

BOARD OF PUBLIC WORKS,

TO THE

GENERAL ASSEMBLY OF LOUISIANA,

FOR THE YEAR 1870.

SESSION OF 1871.

NEW ORLEANS:
PRINTED AT THE OFFICE OF THE REPUBLICAN, 94 CAMP STREET.
1871.

THE NEW YORK
PUBLIC LIBRARY
P 93666
ASTOR, LENOX AND
TILDEN FOUNDATIONS.
1901

REPORT.

STATE OF LOUISIANA,
OFFICE BOARD OF PUBLIC WORKS,
New Orleans, December 31, 1870.

the Honorable Members of the Senate and House of Representatives of the State of Louisiana:

The report of the Board of Public Works of December 31, 1869, the last General Assembly, showed that a vast amount of work s in course of construction, for which the pay or remuneration s predicated upon appropriations to be made by the Legislature. r this work certificates of indebtedness were given, which were bsequently exchanged by the board for warrants upon the State ditor by the provisions of Act No. 32, approved February , 1870, by which three millions of dollars ($3,000,000) of the nds of the State were appropriated for the payment of work ne, and to be done, on the levees of the State.

The abstracts and tables herewith annexed, exhibit fully the transtions of the board up to the date of this report. Abstract No. 1 hibits the net amount placed in the treasury to the credit of the ard as the proceeds of the bonds or a part of the bonds before entioned, amounting to one million seven hundred and thirty-six busand five hundred and thirteen dollars and ninety-two cents ,736,513 92), there still remaining to be negotiated, one million the bonds; it also exhibits all payments made for work done, as ssified in table No. 1, amounting to two millions six hund and eight thousand six hundred and sixty-six dollars and ety-one cents ($2,608,666 91), and claims for work done by le No. 2, amounting to eighty-four thousand five hundred and rteen dollars and forty-nine cents ($84,514 49), under a resolu- of the board, adopted and promulgated July 6, 1869, and emlied in our report of that year, and an amount by table No. 3 of nty-three thousand four hundred and twenty-six dollars and ety-six cents ($23,426 96) which was unpaid, as stated in our

report of last year, also an amount of eight thousand two hundred and sixteen dollars and fifteen cents ($8,216 15) in warrants issued in 1869, and unpaid, as shewn in our report of that year.

It will be seen that warrants have been issued to the amount of nine hundred and eighty-eight thousand three hundred and ten dollars and fifty-nine cents ($988,310 59) over and above the amount of funds in the treasury to the credit of the board, and that several works are still in progress which doubtless will be completed early in the following year, and final settlements made by warrants for the additional amounts that may be due. The total surplus will then probably amount to two hundred and forty thousand dollars ($240,000) above the amount of the bonds remaining to be negotiated. This probable surplus we respectfully recommend to your honorable bodies for consideration, and ask that some provision be made for the liquidation of the same.

The appropriations by Act No. 147, approved December 30, 1869, for removing obstructions from, and improving the navigation of Bayou Vermilion, and by Act No. 152, approved December 30, 1869, for removing obstructions in navigation in the Bayou Teche, have been exhausted, and the work performed satisfactorially and directly under the supervision of the Commissioner of the District in which the work was done. We will simply mention here, that at the last session of the United States Congress, an appropriation was made for the express purpose of removing such obstructions to navigation in the Bayou Teche, as was caused during the late war by the sinking of Confederate boats, and that the work is in charge of the United States engineer department, and when completed, the bayou will be in a clear and safe navigable condition.

The work for the improvement of the navigation of and the removal of the obstructions in Bayou Bartholomew, under the provisions of Act No. 59, approved March 5, 1870, was contracted for in accordance with said act, and is being prosecuted vigorously.

At the commencement of the present season proposals were invited for a large quantity of work, which, if contracted for, would have greatly increased the indebtedness of the State. Upon consulting his Excellency the Governor and members of your honorable bodies it was deemed prudent to confine the quantity, if possible, within the probable amount that would accrue from appropriations already made; hence, some of the works, even after commencement, were

reduced, and others omitted entirely. From numerous responsible planters and others interested, and from examinations and reports of our engineers, we have information of breaks and caves of levees, leaving gaps that threaten serious destruction to the alluvial districts. We appeal to your honorable bodies for relief, and hope that some arrangement will speedily be made to avoid, if possible, much, if not absolutely all, apprehended destruction that may result from small gaps or crevasses already existing, and such as may occur to many of the weaker levees during the spring rise of 1871. The planters and parishes now look to the State to protect them from the disasters by the river, and the board, in its present financial condition, is utterly powerless to do this without pledging the credit of the State, which action we deem unwise at this time. Those larger breaks or crevasses, known as Ashton and Diamond Island, described in our last report, still remain open, and it must be borne in mind that when either or both are closed, the major part of the levees on the Mississippi, down to the mouth of Red river, must be raised and strengthened to resist the increased volume of water that then will be confined within the levees, and that now passes off through the interior streams, emptying into Red river just above its mouth.

In locating new works, great care has always been taken to place them sufficiently far back from the river banks, particularly where the banks gave indications of caving, to make them somewhat permanent; but to make them permanent is considered impossible, as the action of the Mississippi river is treacherous and wonderful, and beyond the calculations of man. The argument is conclusive that where the river shortens itself by cut-offs, it will surely gain its usual length by producing caves and crevasses, and this operation of cause and effect will continue while the water flows and the soil remains in its present condition; hence the levees must continually be watched and worked, and no absolute permanency can be established, unless by some system of breakwaters not yet demonstrated.

Since the organization of the Board of Public Works, there has been five million, eight hundred and eighty thousand (5,880,000) cubic yards of levees constructed, at a cost of three million, two hundred and sixty thousand dollars, ($3,260,000,) add to these amounts the probable over issue of warrants, as before mentioned, and five hundred thousand (500,000) cubic yards of earth, equal to

the same, and we have a grand total of six millions, three hundred and eighty thousand (6,380,000) cubic yards at three million five hundred thousand dollars ($3,500,000), beside paying seventy thousand dollars ($70,000) for timber faceening and other extra work and eighty four thousand, five hundred dollars ($84,500) for levees built and repairing levees by planters and others.

We submit approximate estimates of the cubic yards of levees required for the current and ensuing year. That classed as "temporary" must be done before the coming spring rise, in order to give security to many sections. The "permanent" quantity will be understood as required to put the whole line of levees in a condition of comparative permanency.

	Temporary.	Permanent.
First District	150,000	250,000
Second District	194,000	775,000
Third District	321,000	1,000,000
Fourth District	121,000	1,000,000
Fifth District	385,000	2,000,000
Total	1,171,000	5,025,000

And thereafter 1,500,000 cubic yards a year, forever, being only a small percentage for the wear and tear.

ABSTRACT No. 1.

Abstract of Payments made by Warrants drawn on the Levee Fund of the State Treasury.

RECEIPTS.	Amount.	EXPENDITURES.	Amount.
Proceeds of two millions of bonds under Act No. 32, approved February 25, 1870, as informed by the Auditor, to date	$1,736,513 92	For construction of levees—Table No. 1	$2,608,666 91
		For levees and crevasses—Table No. 2	84,514 49
		For levees and crevasses—Table No. 3	23,426 96
			$2,716,608 36
Over issue to date	988,310 59	Warrants unpaid in Abstract No. 1—Report of 1869.	8,216 15
	$2,724,824 51		$2,724,824 51

ABSTRACT No. 2.

Abstract of Payments made by Warrants drawn on the General Fund of the State Treasury.

WARRANTS.	Amount.	EXPENDITURES.	Amount.
Act No. 152, approved December 30, 1869.....	$30,000 00	For removing obstructions in bayous—Table No. 4	$50,000 00
Act No. 147, approved December 30, 1869.....	20,000 00	For salary and mileage of commissioners—Table No. 5.....	19,477 50
Act No. 72, Legislature of 1868, creating Board of Public Works.....	63,674 49	For salary, mileage and expenditures of Engineer's Department—Table No 6.....	30,298 86
		For expense account—Table No. 7	11,367 68
		For advertising and printing—Table No. 8.....	2,530 45
	$113,674 49		$113,674 49

Statement of Levees Constructed Under Contract and by Authority, and Payments Made Therefor.

District.	Name of Levee.	Parish.	Contractor.	Cubic Yards.	Price.	Total Cost.	Cubic Yards in each Dis't.
First District....	Lesseps.....	Plaquemines.....	P. Leonard.....	37,021.00	50	$18,510 50	
First District....	Hickey.....	East Baton Rouge..	F. Germain.....	57,226.10	55	31,474 35	
First District....	Kenner.....	Ascension.....	P. J. Kennedy.....	10,490.00	55	5,769 50	
First District....	Doyal.....	Ascension.....	P. J. Kennedy.....	25,000.00	55	13,750 00	
First District....	Sauve.....	Jefferson.....	H. R. Gogreve.....	113,538.00	50	56,769 00	
First District....	Villere No. 2.....	St. Bernard.....	P. Leonard.....	31,062.00	40	12,424 80	
First District....	Davidson.....	St. Bernard.....	P. Leonard.....	26,804.40	45	12,062 00	
First District....	Conne.....	Plaquemines.....	P. Leonard.....	29,007.50	50	14,503 75	
First District....	Landry.....	Ascension.....	Thomas O'Malley.....	52,235.00	55	28,729 25	
First District....	Hardtimes.....	Ascension.....	P. J. Kennedy.....	25,807.30	55	14,194 00	
First District....	Walker.....	East Baton Rouge..	John McGinty.....	17,945.00	57	10,228 65	
First District....	Hagan.....	St. James.....	Bartels & Jacobshagan.	5,134.30	40	2,053 72	
First District....	Convent.....	St. James.....	P. J. Kennedy.....	21,520.00	55	11.836 00	
First District....	Reserve.....	Ascension.....	P. J. Kennedy.....	12,590.00	55	6,924 50	
First District....	Story.....	St. Bernard.....	P. Leonard.....	27,270.00	45	12,271 50	
First District....	Gipsey.....	St. Charles.....	John McGinty.....	21,165.00	55	11,640 75	
First District....	Ormand.....	St. Charles.....	John McGinty.....	13,856.00	55	7,620 80	
First District....	Hermitage.....	St. Charles.....	P. J. Kennedy & Co....	39,352.12	49	19,282 54	
First District....	Kenner.....	Jefferson.....	P. J. Kennedy & Co....	24,159.00	44.2	10,750 75	
First District....	Dovidson.....	St Bernard.....	A. L. Lee.....	14,210.00	37	5,257 70	
First District....	Kernachan.....	Plaquemines.....	A. L. Lee.....	5,500.00	37	2,035 00	
First District....	Point Clair.....	Iberville.....	P. J. Kennedy & Co....	12,487.00	49	6,118 63	
First District....	Camp.....	Iberville.....	P. J. Kennedy & Co....	20,408.16	49	10,000 00	
First District....	Court House.....	Plaquemines.....	A. L. Lee.....	6,818.18	44	3,000 00	650,686.06
Second District..	Dupuy.....	Iberville.....	J. P. Baker.....	37,683.00	54	20,348 82	
Second District..	Morganza.....	Pointe Coupee.....	P. J. Kennedy.....	400,206.10	60	240,123 64	
Second District..	Roman.....	St. James.....	P. J. Kennedy.....	81,055.00	55	44,580 25	
Second District..	Roman.....	St. James.....	P. J. Kennedy.....	.....	.....	948 00	

TABLE No. 1—*Continued.*

Districts.	Name of Levee.	Parish.	Contractor.	Cubic Yards.	Price.	Total Cost.	Cubic Yards in each Dis't.
Second District..	Labranche.....	Jefferson.....	P. J. Kennedy.....	104,150.36	55	$57,282 70	
Second District..	Red Store.....	Pointe Coupee.....	J. B. Lewis.....	24,732.00	47	11,624 05	
Second District..	Zeringue.....	St. Charles.....	R. Vansickle.....	10,369.00	48	4,977 12	
Second District..	Red River Landing..	Pointe Coupee.....	H. C Doherty.....	6,033.72	75	4,525 29	
Second District..	Waterloo.....	Pointe Coupee.....	J. B. Lewis.....	26 308.00	43	11,312 44	
Second District..	Fazende.....	Jefferson.....	P. Fortier.....	72,4 9.00	53	38,413 87	
Second District	Collins.....	Pointe Coupee.....	H. C. Doherty.....	8,700.00	50	4,350 00	
Second District..	Villere No. 1.....	Orleans.....	H. R. Gogreve.....	12,447.50	50	6,223 75	
Second District..	Fisher's Landing....	Pointe Coupee.....	J. B. Lewis.....	17,697.14	50	8,848 57	
Second District..	Racourci.....	Pointe Coupee.....	Michael O'Conner.....	2,965.00	40	1,186 00	
Second District..	St. Francis.....	Pointe Coupee.....	P. Dooling.....	8,928.00	35	3,124 80	
Second District..	Whaley & Hall.....	Iberville.....	John McGinty.....	7,326.50	54	3,956 14	
Second District..	Fazende.....	Jefferson.....	John McGinty.....	.....	.....	609 63	
Second District	Labutut & Feriet.....	Pointe Coupee.....	Lawrence Murphy.....	17,866.00	30	5,359 80	
Second District	Morrison.....	Pointe Coupee.....	Lawrence Murphy.....	2,924.00	30	877 20	
Second District..	Red River Landing..	Pointe Coupee.....	P. J. Kennedy & Co....	55,348.00	63	34,869 24	
Second District..	Grand.....	Pointe Coupee.....	P. J. Kennedy & Co....	98,286.64	66.2	65,360 61	
Second District..	Brady.....	West Baton Rouge.	P. J Kennedy & Co....	48,737.30	50	24,368 65	
Second District..	Laws & Stone.....	Iberville.....	P. J. Kennedy & Co....	59,569.00	49	29,188 81	
Second District..	Company Canal.....	Jefferson.....	P. J. Kennedy & Co....	37,126.00	44.2	16,521 07	
Second District..	Hebert.....	Iberville.....	P. J. Kennedy & Co....	30,611.24	49	15,000 00	1,171,548.50
Third District...	Bayou Current.....	St. Landry.....	Llambias & Dockter...	58,000.00	68.2	39,730 00	
Third District...	Turner's Bayou.....	Avoyelles.....	P. J. Kennedy & Co..	144,305.00	62.2	90,190 62	
Third District...	Harvey's Bayou.....	St. Landry.....	P. J. Kennedy & Co..	52,823.00	50	26,411 50	
Third District...	Crawford.....	St. Landry.....	P. J. Kennedy & Co..	53,478.00	50	26,739 00	
Third District...	Bayou Rouge.....	St. Landry.....	P. J. Kennedy & Co..	14,300.00	50	7,150 00	
Third District...	Garrett.....	St. Landry.....	P. J. Kennedy & Co..	11,832.00	50	5,916 00	334,738.00
Fourth District..	De Soto Parish.....	De Soto.....	John McGinty.....	34,390.00	70	24,073 00	

Fourth District..	Chemaniho	Natchitoches	P. J. Kennedy & Co..	120,014.00	70	84,009 80	
Fourth District..	Hurricane Bluff	Caddo	P. J. Kennedy & Co..	100,401.00	40	40,160 40	254,805.00
Fifth District....	Waterproof, upper...	Tensas	Hatch, James & Co....	56,657.00	65	36,827 05	
Fifth District....	Illawarra	Carroll	Hatch, James & Co....	89,772.00	60	53,863 20	
Fifth District....	Hawes Harris	Madison	Hatch, James & Co....	184,222.17	65	119,744 41	
Fifth District....	Kempe	Tensas	Hatch, James & Co....	193,333.30	60	116,000 00	
Fifth District....	Kempe	Tensas	Hatch, James & Co....	120,108.59	55	66,059 72	
Fifth District....	Kempe	Tensas	Hatch, James & Co....	.....	.....	12,738 50	
Fifth District....	Delta	Madison	P. J. Kennedy	131,792.25	58	76,439 52	
Fifth District....	Young's Point	Madison	P. J. Kennedy	115,627.60	58	67,064 00	
Fifth District....	Coleman	Tensas	John McGinty	6,735.00	60	4,041 00	
Fifth District....	Point Pleasant	Tensas	P. Harnan	72,272.00	55	39,749 60	
Fifth District....	Buckner	Tensas	P. Harnan	26,078.00	55	14,342 90	
Fifth District....	Stamboul	Carroll	P. Harnan	3,000.00	70	2,100 00	
Fifth District....	Deason	Carroll	Hatch, James & Co....	23,750.00	50	11,875 0	
Fifth District....	Buckhorn	Madison	Hatch, James & Co....	106,360.92	65	69,134 60	
Fifth District....	Bondurant	Tensas	Hatch, James & Co....	80,227.60	70	56,159 30	
Fifth District....	Wilson	Tensas	Hatch, James & Co....	157,916.39	55	86,854 00	
Fifth District....	Hardtimes	Tensas	Hatch, James & Co....	22,559.00	55	12,407 45	
Fifth District....	Glasscock	Concordia	Lawrence Murphy	92,580.00	59	54,622 20	
Fifth District....	Bell & Newman	Carroll	Hatch, James & Co....	19,000.00	50	9,500 00	
Fifth District ..	Brown	Tensas	Hatch, James & Co....	5,841.00	55	3,212 55	
Fifth District....	Disharoon	Tensas	Hatch, James & Co....	46,120.00	65	29,978 00	
Fifth District...	Waterproof, lower ...	Tensas	John McGinty	142,929.00	65	92,903 85	
Fifth District....	Stamboul	Carroll	Michael Murphy	7,605.00	30	2,281 50	
Fifth District....	Marengo	Concordia	A. B. Harris	5,407.67	90	4,866 90	
Fifth District....	New Carthage	Tensas	P. J. Kennedy	39,450.00	55	21,697 50	
Fifth District....	Bond	Carroll	Timothy Burns	10,785.00	50	5,392 50	
Fifth District....	St. Joseph	Tensas	H. R. Steele	39,511.65	60	23,707 00	
Fifth District....	Longwood	Carroll	P. J. Kennedy & Co...	51,391.30	57.2	29,550 00	
Fifth District....	Stamboul	Carroll	P. J. Kennedy & Co...	90,441.17	68	61,500 00	
Fifth District....	Goodrich	Carroll	P. J. Kennedy & Co...	62,729.91	58	36,383 35	

TABLE No. 1—*Continued.*

Districts.	Name of Levee.	Parish.	Contractor.	Cubic Yards.	Price.	Total Cost.	Cubic Yards in each Dis't.
Fifth District....	Bell.....	Carroll.....	P. J. Kennedy & Co...	30,333.33	60	18,200 00	
Fifth District....	Milliken's Bend.....	Madison.....	P. J. Kennedy & Co...	47,531.00	50	23,765 50	
Fifth District....	Lowry.....	Madison.....	P. J. Kennedy & Co...	10,000.00	51	5,100 00	
Fifth District....	Hardtimes.....	Tensas.....	P. J. Kennedy & Co...	29,485.00	51	15,037 35	2,121,552.85
Total.....	.....	.....	.....	4,533,2 0.41	.....	$2,608,666 91	4.533,250.41

Statement of Payments made upon Claims for Work done upon Levees and Crevasses, part of which were heretofore mentioned in Table No. 8, of Report of 1869.

District.	Levee.	Crevasse.	Parish.	Claimant.	Cubic Yards.	Price.	Amount.
First		Villere	St. Bernard	A. W. Walker			$19,720 81
First		Poydras	St Bernard	John Davidson			1,550 00
First		Ashland	Ascension	D. F. Kenner			4,108 99
First	Marchand		Ascension	Alexander Marchand	1,153.00	40	461 20
First	White Rose		St. James	Francis Ives Le Boures	2,307.00	35	807 45
First	Union		St. John the Baptist	H. Kuhlman	6,488.00	45	2,919 60
First	Jefferson Parish, left bank		Jefferson	Police Jury			1,014 12
Second		Hermitage	Pointe Coupee	L. P. Guyol			236 25
Second	McLean		Pointe Coupee	Jerry O'Neil	1,600.00	35	560 00
Second	Dauherty		West Baton Rouge	Citizens' Bank	18,380.00	26	4,778 80
Second	Belmont		West Baton Rouge	L. F. Generes	6,413.55		2,139 00
Second	Roman		St. James	Thomas Gill	6,047.22	30	1,814 17
Second	Dugas		Ascension	John S. Wallis	4,222.64	55	2,322 50
Second	Ventress		Ascension	D. W. F. Bisbee	11,770.00	45	5,296 50
Second	Whitehead		St. Charles	William B. Whitehead	3,738.00	22	822 36
Second	Zolly		St. Charles	Jacob Zolly	7,844.53	30	2,353 35
Second	Louisa		St Charles	Freret Brothers	14,035.50	50	7,017 75
Second	Louisa		St. Charles	Freret Brothers			200 00
Second	Louisa		St. Charles	Florant Friloux	2,322.00	50	1,161 00
Second	Waggaman		Jefferson	Mrs. C. Waggaman	7,446.48	30	2,233 94
Second	Belle Chasie		Plaquemines	W. & H. Stackhouse	2,856.00	35	999 60
Second	Live Oak Grove		Plaquemines	W. & H. Stackhouse	1,520.00	35	532 00
Second	Gaudet		Lafourche	Police Jury			3,125 00
Third	Griffin		Avoyelles	Citizens' Bank			2,035 00
Fourth	Experiment		Avoyelles	S. K. Johnson	35,478.00	45	15,965 10
Fifth	St. Joseph		Tensas	Robert Murdock			240 00
				Oscar Arroyo			100 00
Total							$84,514 49

TABLE No. 3.

Statement of Payments on Levees and Crevasses which were Unpaid, as exhibited in Abstract No. 3, of Report of 1869.

Name of Levee.	Name of Crevasse.	Parish.	Contractor.	Amount.
Marengo	.....	Concordia	P. J. Kennedy	$1,828 45
Robertson & Allen	.....	West Baton Rouge	Huger & Jones	5,819 73
Caine, Winter & Hereford	.....	West Baton Rouge	Huger & Jones	4,358 53
Wilton, No. 2	.....	Carroll	Buckner, Rhodes & Goodrich	4,299 16
Wilton, No. 1	.....	Carroll	.....	926 19
.. ..	St venson	St. John the Baptist	Edward Roussel and others	4,416 62
.....	Morganzia	Pointe Coupee	P. J. Kennedy	1,781 28
Total	.....	.....	.....	$23,426 96

Disbursements for Removing Obstructions and *Improving the Navigation of Bayous, paid in General Fund Warrants.*

Bayou.	Contractor.	Special Authority.	Amount.
Teche	N. R. S ratton	Act of Legislature, No. 152, approved December 30, 1869	$30,000 00
Vermilion	N. R. Stratton	Act of Legislature, No. 147, approved December 30, 1869	20,000 00
Total			$50,000 00

TABLE No. 5.

Payments on Account of Salary and Mileage of Commissioners, Paid in General Fund Warrants.

To Whom Paid.	Salary.	Mileage.	Amount.
H. W. Sawyer	$2,400 00	$610 50	$3,010 50
J. O. Van Winkle	2,400 00	1,260 00	3,660 00
Geo. H. Cleveland	2,400 00	439 50	2,839 50
Martin Flood	2,400 00	2,520 00	4,920 00
Geo. O. Benham	2,400 00	2,647 50	5,047 50
Total	$12,000 00	$7,477 50	$19,477 50

Engineer's Department TABLE No. [illegible]

for Salary, Mileage, and Expenditures Paid in General Fund Warrants.

To Whom Paid.	Salary.	Mileage.	Expenditures.	Total Amount.
M. Jeff. Thompson, Engineer	$5,000 00	$1,000 50	$753 75	$6,754 25
John V. Van Pelt, Engineer	3,000 00	1,190 55	205 50	4,396 05
A. F. Wrotnowski, Engineer	2,850 00	1,852 80	110 50	4,813 30
Henry A. Peeler, Engineer	675 00	541 50	304 40	1,520 90
W. C. Melvin, Engineer	2,209 33	1,216 50	40 17	3,466 00
T. A. Washington, Engineer	1,983 33	877 80	.....	2,861 13
H. B. Thompson, Assistant to Engineers	.....	.....	.....	1,100 00
Frank Doremus Assistant to Engineers	.....	.....	.....	703 33
John Banks, Assistant to Engineers	.....	.....	.....	192 33
Zelo Birmingham, Assistant to Engineers	.....	.....	.....	800 00
R. W. McConnel, Assistant to Engineers	.....	.....	.....	163 33
W. C. Sanford, Assistant to Engineers	.....	.....	.....	837 96
Frank Reynolds, Assistant to Engineers	.....	.....	.....	266 67
J. Uncas Lewis, Assistant to Engineers	.....	.....	.....	100 00
C. Duhamel, for Surveying Instruments	.....	.....	.....	1,625 66
John Lynch, for Maps and Field Notes	.....	.....	.....	325 00
Expense for Engineer's Office, Second District	.....	.....	.....	155 55
Expense for Engineer's Office, Fourth District	.....	.....	.....	167 40
Expense for Engineer's Office, Fifth District	.....	.....	.....	50 00
Total	.....	.....	.....	$30 298 86

TABLE No. 7.

Payments on Account of Expense, paid in General Fund Warrants.

To Whom Paid.	Nature of Indebtedness.	Amount.
R. D. Mitchell	For salary as secretary	$2,565 00
George W. Rollins	For salary as assistant secretary	2,100 00
John D. Smith	For salary as porter	720 00
Rice Brothers & Co	For hardware	27 67
W. G. Coyle & Co	For coal	64 80
Expense	For window shades and trimmings	35 50
Expense	For rent of offices for board and engineers	3,250 00
B. Dagries and H. Carle	For watching and guarding Grand Levee	1,000 00
Expense	For rent of postoffice box, postage, telegrams, etc	204 68
Louisiana National Bank	For acting as the depositary of State Levee bonds for the late Board of Levee Commisioners	1,000 00
B. Dagries	For watching and guarding Grand Levee.	400 00
Total		$11,367 68

TABLE No. 8.

Payments on Account of Advertising and Printing, Paid in General Fund Warrants.

To Whom Paid.	Nature of Indebtedness.	Amount.
New Orleans Commercial Bulletin..	Advertising.....	$57 75
New Orleans Times.....	Advertising.....	65 00
New Orleans Picayune.....	Advertising.....	139 75
New Orleans German Gazette.....	Advertising.....	73 15
New Orleans Republican.....	Advertising and printing.....	382 50
Baton Rouge Courier.....	Advertising.....	35 00
Iberville Pioneer.....	Advertising..	10 00
Attakapas Register.....	Advertising..... ...	6 00
Republican Pioneer.....	Advertising.....	21 00
J. B. Lippincott & Co.....	Stationery.....	327 00
John W. Madden..	Stationery, tracing cloth, map paper, etc.....	1,338 30
Wm. J. McCullough.....	Maps of portions of Louisiana..	60 00
S. A. Moore.....	Maps of portions of Louisiana..	15 00
Total.....	.....	$2,530 45

In the month of September last past the subject of a protection levee in rear of the city of New Orleans was referred to us by the Board of Administrators of the city, and the same was referred by the Board of Public Works to the Commissioner of the First Levee District, as will be seen by the following report submitted by said Commissioner.

NEW ORLEANS, October 8, 1870.

To the President and Commissioners of the Board of Public Works :

On September seventh last, your honorable body referred a report and resolutions from the Board of Administrators of the city of New Orleans, relative to the building of a protection levee in rear of the city to the Commissioner of the First District, with instructions to report back as early as possible his views, and any information he might possess upon the subject.

In obedience to said action of the board, the Commissioner of the First District begs leave to submit the following brief statement:

Since the organization of the board down to the present time the board has had nothing whatever to do with the wharves and levees within the incorporated city limit, and if it has no authority to interfere in any manner with the wharves and levees on the city's front, it certainly has no authority to do so with the canals and proposed protection levee around the rear of the city.

It is true, the object of the levee fund is for the building and repairing of levees, but in the opinion of your Commissioner, only on the river and bayou fronts for the protection of cultivable land liable to overflow, and as the city is a commercial and not a manufacturing city, it is dependent upon the agricultural region of the State, and the protection of these lands repays the city equal with the country for her proportion of the levee tax.

The principle of the board has been, I believe, to construct only front levees, and in no instance has it constructed what is termed a back or swamp levee; should it be its duty to build a levee in rear of the city for the protection of the city from water flowing into it from the lake and swamp, then with the same propriety should it build both in rear and front of the agricultural regions along the rivers and bayous.

In the present financial condition of the board and the uncertainty of it having any funds at its command during the present year, I

am impressed with the thought that it would be futile, and we would supersede our constituted authority to attempt a work of such magnitude as the proposed protection levee, even should it be considered within the province of the board, without further legislative action.

Very respectfully,

S. W. SAWYER.
Commissioner First District.

The board concurring in the foregoing report, it was unanimously adopted, and a copy sent to the Board of Administrators of the city of New Orleans.

Permit us to state in conclusion that we would fail in our duties did we not acknowledge the courtesy and assistance extended us at all times by his Excellency the Governor of the State; the State Auditor and Treasurer, and by members of the present General Assembly, in all matters wherein the interest of the State as well as that of the people seemed to present.

We deem it proper to annex the special reports from the engineers of the board, which minutely and elaborately describe the condition of the levees, believing that the information contained in them will be of great importance to your honorable bodies, and very interesting to the people of the State.

Respectfully submitted,

MARTIN FLOOD, President.
S. W. SAWYER, Commissioner.
GEO. C. BENHAM, Commissioner.

REPORT

OF THE

ENGINEER OF THE FIRST DISTRICT.

ENGINEER'S OFFICE BOARD OF PUBLIC WORKS,
NEW ORLEANS, September 5, 1870.

Captain S. W. Sawyer, Commissioner First Levee District Board of Public Works:

CAPTAIN—I herewith have the honor to report upon the Levees of the First District, as found at my recent inspection of the same.

I am happy to state that there has been no important change in the bank of the river since my report of the twenty-sixth of October, 1869; and that all of the works constructed during the past season, with some small exceptions, are fully up to the requirements and in good order; and it only remains for us to build the other works then asked for, which we were unable to do for want of sufficient labor.

To report on the works now required would simply be a repetition of last season's report, with notes of the works that we built last season, and a few remarks where changes have occurred.

Therefore, I will simply remark that all the works asked for in East Baton Rouge parish were built; for this was the head of the district, and dangerous.

We did no work in Iberville parish, left bank; but the two works needed there are both advertised, and they, with adjoining patches, will require from thirty to forty thousand cubic yards.

We built four levees in Ascension, left bank, last season; and I would be glad to build two others this coming season, but none are advertised for the left bank.

We built the levee above the College in St. James parish, but the other works mentioned are still required.

In St. John Baptist parish, the levee called "Beyer's," now Miltenberger's, was built; and Mr. Leon Godcheau built the piece

mentioned in a manner that answered the purpose and up to full section, and he is entitled to some compensation, as he built it in good faith, and not, as I supposed, for the purpose of preventing our building a larger levee.

The levee from La Branch to Hollingsworth has not been repaired sufficiently, though it has been worked on by the planters; and as the levee round Bonnet Carré point would cost less than to repair the old levee, and as, on account of conflict of opinion as to the proprietorship of this batture the planters can not do the work themselves, I would ask for a new levee around the point at as early a day as practicable.

On the Genatheen Plantation, the levee is nearly completed, under contract with John McGinty. This is known as the Gipsey Levee. The McCutchen or "Ormand" Levee has been completed also by John McGinty, but upon neither of these has an estimate been made, as they have been built during the summer season, since the last meeting of the board.

The Sauve Levee, in Jefferson parish, is one of the best constructed levees of the last season.

Of the levees of St. Bernard and Plaquemines parishes, you are so well acquainted that I need only state that the work we did gave great satisfaction, and the only disputed point is about the work done by Diamond and Lally. That was not put where I staked it, and, therefore, not estimated; but as the matter will be brought before you in a special application and report, I will allude to it no further at this time. Twenty-five thousand cubic yards for St. Bernard and seventy-five thousand for Plaquemines will be required this season, and then all in these parishes will be in good repair for years.

I must beg you to impress upon the board the importance of taking some action in regard to "Rice Flumes." Many of them are very dangerous, and only a few properly constructed. Now, while the water in the river is so far below the banks, is the time to have them repaired or rebuilt, or removed. Rice is becoming a very important crop in magnitude and value, and the number of flumes is so great in many localities that some regulation must be adopted to save our levees.

A recapitulation of the levees advertised in the First District, to

be built the coming season, shows but fifteen pieces of work, containing 204,500 cubic yards; but I hope the same liberal policy will be pursued as was last season, and that small adjoining works may be added, when dangerous, or "caves" occur after the letting.

Respectfully submitted:

Your obedient servant,

M. JEFF. THOMPSON,
Engineer First District.

A true copy:

R. D. MITCHELL, Secretary.

CHIEF ENGINEER'S REPORT.

ENGINEER'S OFFICE, BOARD OF PUBLIC WORKS.
New Orleans, La., September 7, 1870.

General MARTIN FLOOD, President Board of Public Works:

GENERAL: I beg permission to report the operations in the Engineer's Department of the Board of Public Works since the regular annual report of December 31, 1869:

The conclusion of the last season's work found only three engineers in the service of the board, and the simultaneous manner in which many of the levees were completed, and their final estimates required, forced us to great activity up to May 10, when the board passed upon the "finals," which aggregated near three millions of cubic yards which, with the few works now in progress, or completed since, will make 3,206,236 of cubic yards for the season's contracts, as will fully appear in Table No. 2, herewith.

Mr. W. C. Melvin having been appointed engineer for the Fourth District, and Colonel T. A. Washington appointed engineer for the Fifth District, and Colonel A. F. Wrotnowski having been assigned to the Third District since the completion of last season's contracts, each district has since been in charge of its own engineer, except in instances which will hereafter appear.

The only contracts that have been pushed during the summer were the improvement of the Bayou Teche, the Ormand levee and the Gipsey levee. The contractors left their outfits on the Lower Waterproof and the Bayou Currant levee to resume work as soon as the labor can be obtained, and preparations have been made for the improvement of the Vermilion.

The engineers of the different districts have made their reports to their respective commissioners and also to this office, and a recapitulation of these reports shows an aggregate of 5,111,300 cubic yards as required for levee purposes, as will appear in Table No. 1, herewith.

Table No. 1 also shows the works that are advertised and their probable cubic yards, but I would remark that the quantities may

be largely increased or decreased, as the board may or may not determine to build the Ashton and Diamond Bend levees, and in this connection it becomes my duty to state my opinions and facts in regard to the policy, at the present time, of closing or not closing these crevasses.

Before giving my opinion on the subject, I must give the reasons that influence me, and the principal one is, the PERNICIOUS effect of the cut-off system that has prevailed between the mouth of the Arkansas and Red river for the past forty years, that has made it impossible to intelligently determine where to locate a levee—that it will not cave in, without throwing out all the cultivable lands by building miles from the river, as the figures I will presently show will demonstrate.

I have procured field notes from the Surveyor General's office, and we have connected our surveys with the section corners, wherever practicable, and the great changes of forty years near these cut-offs can be definitely seen; and from the levee surveys of 1866, when the new levees had just been completed, and the Terrapin Neck and Palmyra Bend cut-offs had not been made (which were made in 1867), we can see the damage of the past three years, and prove the necessity, of preventing, if possible, their occurrence.

The slope and length of the river from the rocks to the Gulf will be the same FOREVER and the straightening of the channel only occurs as the mouth grows out into the sea (temporary cut-offs only proving the rule).

The following statement show the vast amount of work which has been done in the neighborhoods of the Bunches Bend, Terrapin Neck, Palmyra Bend and Racourci cut offs during the past five years, all of which lays within five parishes:

In Carroll Parish.

	Yards.
The Duralde Board built (table No. 2)	1,057,804
The Duralde Board let (table No. 26)	450,000
The Oglesby Board (table No. 4)	4,389
The Flood Board, 1868–69	294,852
The Flood Board, 1869–70	153,912
Built since 1865	1,960,957

In Madison Parish.

he Duralde Board built (table No. 2)	1,034,966
he Duralde Board let (table No. 26)	300,000
he Oglesby Board	.....
he Flood Board, 1868–69	101,363
he Flood Board, 1869–70	538,003
Built since 1865	1,974,332

In Tensas Parish.

he Duralde Board built (table No. 2)	767,970
he Duralde Board let (table No. 26)	59,000
he Oglesby Board	.....
he Flood Board, 1868–9	13,969
he Flood Board, 1869–70	918,670
Built since 1865	1,759,609

In Concordia Parish.

he Duralde Board built (table No. 2)	230,469
he Duralde Board let (table No. 26)	*100,000
he Oglesby Board let	.....
he Flood Board, 1868–69	40,938
he Flood Board, 1869–70	137,437
Built since 1865	508,844

Pointe Coupée Parish.

he Duralde Board built (table No. 2)	721,154
he Duralde Board let (table No. 26)	210,000
he Oglesby Board	13,600
he Flood Board, 1868–69	477,951
he Flood Board, 1869–70	509,169
Built since 1865	1,931,874

Thus we have a total of 8,135,656 cubic yards within five parishes, and a requisition for 3,000,000 cubic yards more, to make these parishes safe, which would be small indeed if the levees within

*NOTE.—The levees mentioned in Duralde, No. 26, were some of them passed to the Oglesby Board, and may not all have been completed. I think the Glasscock Bend was not.

the range of Terrapin Neck and Palmyra Bend cut-offs can be safely located, which is at present very doubtful, except by the sacrifice of much valuable land, *or a system of breakwaters that will be efficient.* And in this connection I would state that some experiments should be made in front of the valuable and costly levees.

Now, remembering that many of the large old levees are very much exposed, and most of the new levees below grade, and some of them strictly temporary in their location, we can judge of the disastrous effect of a high flood, that would accelerate the caving of the banks, and therefore we must provide, as well as possible, against such a contingency; and I can demonstrate that the crevasse at Ashton reduces the flood level at least five feet from near the mouth of the Arkansas to near the mouth of Red river, at which most of the water returns to the Mississippi, to flood the country below. With this five feet for a margin, we can save all the *present* cultivated lands in the parishes above Red river with about 300,000 cubic yards of earth ; and to close the Ashton outlet will necessitate the use of nearly 3,000,000 cubic yards in the same parishes.

I am fully aware of the vast body of most valuable land that is now unproductive, and the great importance of the railroad communication, and the inconvenience and injury to many worthy citizens, but still I must state these facts from a sense of duty, that the board can determine what work to order. I will be glad indeed if the board should feel able to construct all the works, for I would oppose a permanent outlet to Ashton, as the levees on the bayous would cost more than the raising of the river levees; but I remember that the works constructed last season cost nearly twice as much as I estimated them to cost in my report to the legislative committee, and I know that the residue of the three million appropriation will not be sufficient to accomplish the whole work.

In my report of October 26, 1869 (page 48), I show that it would require 5,218,000 cubic yards to place the levees in repair up to old grade, now remembering that the actual "wear" of the levees amount to nearly 2,000,000 cubic yards per year, the present report confirms that one, for this report covers every defective levee in the five districts, and calls for 5,111,300 or 4,017,300 cubic yards within the district then covered. We built 3,206,000 during the past season, which would leave 2,000,000 more for the Mississippi river, had

there been no wear or new caving; but, with new work, we now require 4,000,000 cubic yards for the Mississippi if the Ashton and Diamond Bend crevasses are closed.

The estimated cubic yards in all the levees in the State in 1860 was—

From Arkansas line to Red river 250 miles	15,000,000
From Red river to Fort Jackson 290 miles	15,000,000
From Baton Rouge to Fort St. Phillip 200 miles	9,000,000
Total on the Mississippi	39,000,000
On the Lafourche, both sides, for 70 miles	3,500,000
On the Atchafalaya	3,500,000
On the Red, Black and Ouachita	5,000,000
Making a total for the State	50,000,000

The amount of work done since 1865 is as follows:

By the Duralde Board, cash contracts....(cubic yards)..	4,674,414
By the Duralde Board, time contracts....(cubic yards)..	2,495,800
By the Oglesby Board.....(cubic yards)..	362,350
Board of Public Works.....(cubic yards)..	4,736,265
Total built since 1865	12,268,829
Still required	5,111,300
Wear and tear for ten years	17,380,129

This shows only three and one-half per cent. per annum, which is very low when it is remembered—firstly, the total neglect for the duration of the war—secondly, the cuts made by the military—and thirdly, the "pernicious" effect of the "cut-offs" have largely increased the labor to be performed, and it is probable that when the levees are completed and the "river" resumes its natural length and current, that even with the increase in height, which Generals Humphreys and Abbott say must be anticipated, that the percentage thereafter will not exceed three per cent.

A recapitulation of the work done by the Board of Public Works since the organization shows—

Season of 1868–69 twenty levees.....(yards)..	1,346,029
Season of 1869–70 sixty levees.....(yards)..	3,206,236
Parishes and planters paid twenty-three levees..(yards)..	184,000
Total work	4,736,265

These levees aggregate nearly forty miles in length and embrace those large works of Grand, Kempe, Haws Harris, Young's Point, etc., and it is proper that I should state that of all this work, we have not lost one cubic yard by overflow, except a few protection levees placed on the banks to keep the water from the larger works until they could settle. I have the honor to be

Your obedient servant,

M. JEFF. THOMPSON,
Chief Engineer.

A true copy:

R. D. MITCHELL, Secretary.

FIRST DISTRICT.

ENGINEER'S OFFICE, BOARD OF PUBLIC WORKS,
New Orleans, Louisiana, December 31, 1870.

Captain S. W. Sawyer, Commissioner First District:

I have the honor to report that the levee work awarded to this District has been completed according to contract and subsequent orders.

By your permission I transferred some of the work "let," to points that had become more dangerous by actual cavings, and thus with the limited number of cubic yards allowed us, I have tried to do the greatest amount of good.

It affords me pleasure to refer to my report of October 26, 1869, (which was printed and before the Legislature), where I show the condition of the levees in this District, for with the exception of the caves at the Angelina and Golden Grove plantation, and the ordinary wear of the waters, each point not since built remains as then reported; but I am happy to state that we have built many of the works mentioned in that report, as I will presently show.

I beg also to refer to my report of September 5, 1870, for what was done during the season of 1869 and 1870, and then state that we have built or repaired since the report of October 26, 1869, the following named levees:

The Hickey, Ramsey, Conrad, Martinez, Lower Conrad and Walker levees, in the parish of East Baton Rouge.

The Bruns Store, Point Clair and Camp levees, in the parish of Iberville, left bank.

The Hardtimes, Mount Houmas, Ashland, D. Landry, Hill and S. Landry levees, in the parish of Ascension, left bank.

The Jacobhagen, College and Golden Grove levees, in the parish of St. James, left bank.

The Angelina, Carbon, Reserve or Miltenberger levees, in the parish of St. John, left bank.

The Gipsey and Ormand levees, in the parish of St. Charles, left bank.

Parish Line, Kenner and Sauve levees, in the parish of Jefferson, left bank.

The Villere, Walker, Story, Decros and Davidson levees, in the parish of St. Bernard.

The Carneravon, Conne, Kernachon, Courthouse, Verbois, Matthies, Lesseps, Leonard, Morand and Huntington levees, in Plaquemines, left bank, showing an aggregate of forty different pieces of work, with less than 650,000 cubic yards for the First District, since October 26, 1869.

I regret that the apportionment for this season's work in this district has been so much reduced, for I have been compelled to shorten the lines at Bruns Store, Point Clair and Camp, in Iberville, and leave several truly dangerous points unprotected, which sixty or seventy thousand cubic yards, would make secure for many years, and I hope that in any new apportionment of work, that this district may receive its proper proportional amount, for it must be remembered that a crevasse above New Orleans, on this side of the river, would flood the city, and the levees of Jefferson, St. Charles and St. John, left bank, must be made and kept safe.

There is a very dangerous point in Carrollton, that should be attended to at an early day, but I would prefer to endeavor to check the encroachment of the river to building a new levee.

I would ask that the dangerous points near St. Gabriel's Church in Iberville, be provided for as early as possible, for the levees are so worn, and so close to the river bank, that a slight cave, or single drift log, should it strike these exposed angles, would drive through them and create a crevasse. The accompanying tables will show the works still required.

Praying that the Legislature will make a sufficient appropriation to enable us to make this district safe, I submit the above report.

Your obedient servant,

M. JEFF. THOMPSON,
Engineer First District.

A true copy:
R. D. MITCHELL, Secretary.

SECOND DISTRICT.

ENGINEER'S OFFICE, SECOND DISTRICT,
Baton Rouge, December 31, 1870.

M. Jeff. Thompson, Chief Engineer:

In submitting estimates for your annual report, I shall best begin by referring to my previous reports of August first and October fifth, and reproducing their tabular statements.

ENGINEER'S OFFICE, SECOND DISTRICT,
Baton Rouge, August 1, 1870.

M. Jeff. Thompson:

I respectfully submit herewith a statement, in tabular form, of all work required during the coming season on the right bank of the Mississippi river, from the mouth of Red river to Fort Jackson; on the left bank of Atchafalaya river for forty miles from its head; and the right bank of Atchafalaya river for forty miles from its head. The column headed "Permanent," shows the cubic yards of earth and feet of lumber required to establish the whole line on a basis of safety and certainty. The column headed "Reduced," shows the cubic yards of earth and feet of lumber required for the most important works and most threatened points, leaving out those which may be risked or left to private enterprise, or saved by extra exertion in high water.

The column of remarks describes the works, and gives, in most cases, the reasons for the reductions. See my Table No. 1.

The report and estimate is based upon a careful examination of the levees, made during the months of June and July. There will be some further cavings of banks during summer, necessitating change, and another examination in the fall.

Very respectfully,

JOHN V. VAN PELT,
Engineer, Second District.

VAN PELT'S TABLE No. 1. [illegible]

MISSISSIPPI RIVER [illegible]

DESIGNATION.	PERMANENT.		REDUCED.		[illegible]
	Cub. yds.	Lumber	Cub. yds.	Lumber	
[illegible] Landing	60,000	.....	60,000	.....	Enlarging and raising the back levee. [illegible]
[illegible]	53,300	.....	53,300	.....	Increase base 20 feet. Raise 2 feet.
[illegible]	22,000	.....	11,000	.....	As a substitute for the permanent levee, two run-arounds [illegible]
[illegible]	87,000	.....	87,000	.....	Putting a front slope in place of the planking on levee of 1890 [illegible]
[illegible]	13,000	.....	13,000	.....	Add 20 feet base. Raise, 1 foot.
[illegible]	11,600	.....	11,600	.....	New levee. Permanent and necessary.
[illegible]	32,200	.....	32,200	.....	Add 20 feet base. Raise 1 foot.
[illegible]	16,200	.....	.....	.....	New levee. May be postponed a year.
[illegible]	36,400		36,100	.....	
[illegible]	42,000	.....	42,000	.....	Add 10 feet base. Raise 2 feet. Important levee.
[illegible]	22,400	.....	.....	.....	Raise 2 feet. Add 6 feet base. May be postponed by guarding it.
[illegible]	200	.....	.....	.....	Closing gaps left for road and drainage. May be watched by adjoining planters.
[illegible]	2,800	.....	.....	.....	Add 2 feet base. Raise two feet. Important, but may be watched by the parish.
[illegible]	29,700	.....	.....	.....	Add 10 feet base. Leaky levee, in wood land, but may be watched by adjoining planters.
[illegible]	4,000	.....	4,000	.....	Buttressing the levee by a road embankment, necessary to secure this costly levee.
[illegible]	56,200	.....	.....	.....	New levee. Constantly postponed for want of means.
[illegible]	2,500	.....	.....	.....	New levee, but may be postponed.
[illegible]	.....	7,200	.....	.....	Washing bank. Needs planking. May be thus saved for many years.
[illegible]	2,800	.....	.....	.....	New levee. May be postponed.
Brush Landing, No. 1	.....	3,500	.....	.....	Levee washing off. Needs planking. May be left to private enterprise.
Brush Landing, No. 2	4,300	.....	4,300	.....	New piece of levee. Necessary.
[illegible]	64,600	.....	64,600	.....	Large new permanent levee. Necessary.
Dan Hickey	4,400	.....	4,400	.....	Buttressing Hickey's old levee, which is very weak.
[illegible]	63,900	.....	.....	9,000	Large new permanent levee required, but may be postponed a year by planking.
Robichaud	9,800	.....	.....	.....	New levee required. Bank not caving. May be postponed and watched.
Southern Allain	16,800	.....	16,800	.....	New levee necessary.
Total West Baton Rouge	347,400	10,700	143,000	9,000	
Woods	21,300	.....	.....	.....	New levee required. May possibly postpone it.
Hebert	16,100	.....	.....	.....	New levee required. May possibly postpone it.
Plaquemine	4,100	.....	4,100	.....	New levee required.
[illegible]	82,700	.....	11,000	.....	May substitute two run-arounds for the large permanent new levee.

[illegible]

Plaissance	.....	16,000	.....	.....	Bank not caving. Present levee needs new planking.
Beatty	13,800	.....	13,800	.....	New levee required.
Point Pleasant	13,800	.....	13,800	.....	New levee required.
Guitteau, No. 1	11,800	.....	.....	14,000	Substitute the planking for the proposed new levee.
Guitteau, No. 2	.....	7,000	.....	.....	Levee needs planking. May be left to the owners.
Whaley	.....	14,000	.....	.....	Levee needs planking. May be left to the owners.
Dr. Hall	16,400	.....	16,400	.....	New levee required.
Dr. Stone	24,600	.....	24,600	.....	New levee required.
Total Iberville	204,600	37,000	83,700	14,000	
Henry Duffel	11,200	.....	11,200	.....	New levee required.
Allen Thomas	.....	10,000	.....	.....	Planking of present levee needs repairs. May be left to owners.
Valere Landry	15,100	.....	15,100	.....	New levee required.
Port Barrow	3,300	.....	3,300	.....	New levee required.
Gaudet	23,600	.....	.....	.....	New levee required. May be postponed.
La Croix	.....	14,000	.....	.....	Present levee needs planking. Must leave it to owners.
Point Houmas	25,400	.....	.....	.....	New levee required, but constantly postponed for want of means.
Petteschaux	13,100	.....	13,100	.....	New levee required.
Total Ascension	91,700	24,000	42,700	.....	
Acadia	4,600	.....	.....	800	Substitute temporary planking for the proposed new levee.
Arcenaux	3,300	.....	3,300	.....	New levee required.
Lapice	.....	15,000	.....	.....	Estimated planking needed at several points. Must be left to owners.
Cantrelle	47,000	.....	47,000	.....	New levee required. Necessary and permanent.
Delogny	49,300	.....	.....	.....	New permanent levee required, but may be postponed.
Burnside	9,200	.....	.....	.....	New permanent levee required, but may be postponed.
Magnolia	19,700	.....	19,700	.....	New permanent levee necessary.
Parish Line	10,500	.....	.....	15,000	Substitute temporary planking for the new levee.
Total St. James	143,600	15,000	70,000	15,800	
Vacherie, No. 1	6,600	.....	.....	15,000	Substitute temporary planking for the new levee.
Vacherie, No. 2	.....	13,000	.....	.....	Present levee requires planking. Must leave it to owners.
Webre & Co	4,100	.....	.....	.....	Add 6 feet base. Raise 2 feet. Must postpone it.
Becknel	.....	10,000	.....	.....	Present levee needs planking. Must leave it to owners.
Keller	.....	3,000	.....	.....	Present levee needs planking. Must leave it to owners.
Laurent & Co	2,000	.....	2,000	.....	New levee required.
Bonnet Carre Church	.....	9,000	.....	.....	Present levee needs planking. Must leave it to owners.
Webre & Daquin	.....	5,000	.....	.....	Present levee needs planking. Must leave it to owners.
Total St. John	12,700	40,000	2,000	15,000	

PRELIMINARY ESTIMATES FOR 1870 AND 1871—*Continued.*

DESIGNATION.	PERMANENT.		REDUCED.		REMARKS.
	Cub. yds.	Lumber	Cub. yds.	Lumber	
Whitehead	9,800	.....	.....	.....	New levee required. May be postponed.
Payne	4,700	.....	.....	.....	New levee required. May be postponed.
La Branche	4,100	.....	4,100	.....	New levee required.
Dupasseur	12,300	.....	12,300	.....	New levee required.
Total St. Charles	30,900	.....	16,400	.....	
Company Canal	24,700	.....	24,700	.....	New permanent levee necessary.
Total Jefferson	24,700	.....	24,700	.....	
United States property	5,600	.....	.....	.....	New levee required. May be postponed.
Cut-off	6,000	.....	.....	.....	New levee required. May be postponed.
Le Croix	9,800	.....	.....	.....	New levee required. May be postponed.
Total Orleans	21,400	.....	.....	.....	
Dr. Wilkinson	4,400	.....	.....	.....	New levee required. May be postponed.
Total Plaquemines	4,400	.....	.....	.....	
Total Mississippi, right bank	1,246,800	126,700	650,600	53,800	

ATCHAFALAYA—LEFT BANK.

DESIGNATION.	PERMANENT.		REDUCED.		REMARKS.
	Cub. yds	Lumber	Cub. yds	Lumber	
Upper Bayou Moreau	4,400	8,000	.....	.....	Repairs to secure an important embankment. Must be left to owners.
North & Smith	4,100	.....	.....	.....	Add 20 feet base to levee of last year.
Bill Means to Marine	23,300	.....	.....	.....	New levee.
Marine Bayou	17,000	.....	17,000	.....	New embankment. Permanent and necessary.
Middle Bayou to Stark's Bayou	9,300	.....	.....	.....	New levee.
t's Bayou	5,700	.....	5,700	.....	New embankment. Permanent and necessary.
[illegible]	[illegible]				

Cypress Point	1,300	.....	.....	.....	
Brooks	6,500	.....	.....	.....	
Bordelon Crevasse	83,700	.....	.....	.....	
Stevens No. 1	1,100	.....	.....	.....	
Stevens No. 2	700	.....	.....	.....	
Bend No. 1	2,500	.....	.....	.....	
Bend No. 2	800	.....	.....	.....	
Point No. 1	1,300	.....	.....	.....	
Point No. 2	1,600	.....	.....	.....	
Point No. 3	500	.....	.....	.....	
Gerard Nelson No. 1	600	.....	.....	.....	
Gerard Nelson No. 2	700	.....	.....	.....	
Woods No. 1	3,900	.....	.....	.....	
Woods No. 2	100	.....	.....	.....	
Mrs. Boikin	3,800	.....	.....	.....	
Dickey & Cooks	30,700	.....	.....	.....	
Cooks' Bayou	3,000	.....	3,000	.....	New embankment.
Garwood	13,100	.....	.....	.....	
Garwood's Bayou	20,500	.....	20,500	.....	New embankment.
Gillox No. 1	9,300	.....	.....	.....	
Gillox No. 2	8,200	.....	.....	.....	
Gillox Bayou	10,000	.....	10,000	.....	New embankment.
Peaks to Picketts	26,200	.....	.....	.....	
Pickett's to Latenache	23,300	.....	.....	.....	
Bayou Latenache	2,000	.....	2,000	.....	Repairs necessary to secure a costly embankment.
Latenache to Cow Head	43,800	.....	.....	.....	
Bayou Cow Head	600	.....	600	.....	Repairs necessary to secure a costly embankment.
Cow Head to Muscle Bayou	1,400	.....	.....	.....	
Bayou Muscle	6,000	.....	6,000	.....	Repairs necessary to secure a costly embankment.
Allain	16,300	.....	.....	.....	
Bayou Cross	500	.....	500	.....	Repairs necessary to secure a costly embankment.
Boyce	5,600	.....	.....	.....	
Slidell	2,800	.....	.....	.....	
Caulfield	4,700	.....	.....	.....	
Carruth to School lot	7,600	.....	.....	.....	
Harper	15,000	.....	.....	.....	
Jones' Bayou	1,400	.....	1,400	.....	New embankment.
Branch	1,400	.....	.....	.....	
Harper & Jackson	9,500	.....	.....	.....	
Helmore	700	.....	.....	.....	
Blalocks Bayou	3,100	.....	3,100	.....	New embankment.
Total Atchafalaya, left bank	462,900	8,000	69,800	.....	

ATCHAFALAYA--RIGHT BANK.

DESIGNATION.	PERMANENT.		REDUCED.		REMARKS.
	Cub. yds	Lumber	Cub. yds	Lumber	
Norwoods (Bayou De Glaize.)	700	.....	.....	.....	
Striblings No. 1 (Bayou De Glaize.)	900	.....	.....	.....	
Striblings No. 2 (Bayou De Glaize.)	1,700	.....	.....	.....	
Striblings No. 3 (Bayou De Glaize.)	3,300	.....	.....	.....	
Striblings No. 4 (Bayou De Glaize.)	1,600	.....	.....	.....	
Simmsport, "Atchafalaya"	16,400	.....	.....	.....	
Tom Harmanson	24,200	.....	.....	.....	
Jim Callihan	12,600	.....	.....	.....	
Sewall	12,600	.....	.....	.....	
White No. 1	3,700	.....	.....	.....	
White No. 2	700	.....	.....	.....	
White No. 3	500	.....	.....	.....	
White No. 4	700	.....	.....	.....	
Yellow Bayou	7,700	.....	7,700	.....	Repairs necessary to save a valuable embankment.
Winn No. 1	13,700	.....	.....	.....	
Winn No. 2	9,000	.....	.....	.....	
Winn No. 3	3,200	.....	.....	.....	
Winn No. 4	7,000	.....	.....	.....	
Stocketts Bayou	6,400	.....	6,400	.....	New embankment.
Heatherwick No. 1	12,300	.....	.....	.....	
Heatherwick No. 2	4,200	.....	.....	.....	
Heatherwick No. 3	4,400	.....	.....	.....	
Jim Cason No. 1	3,000	.....	.....	.....	
Jim Cason No. 2	6,800	.....	.....	.....	
Jim Cason No. 3	6,600	.....	.....	.....	
Jim Cason No. 4	800	.....	.....	.....	
Jim Cason No. 5	3,800	.....	.....	.....	
Jim Cason No. 6	16,300	.....	.....	.....	
Turner's Bayou	51,200	.....	51,200	.....	New embankment.
Draughn	5,600	.....	.....	.....	
Harvey's Bayou	29,500	.....	29,500	.....	New embankment.
Harveys to Gordons	24,700	.....	.....	.....	
Gordons to Current	8,700	.....	.....	.....	
Bayou Current	22,100	.....	22,100	.....	Uncompleted contract of Llambias & Doebter.
Mrs. Gordon	3,700	.....	3,700	.....	Private levee joining the Bayou Current. Embankment continuing to high ground.

William Nelson	3,300	.....	.....	.....	
Gordon & Lindsey	2,200	.....	.....	.....	
Bill Davis	2,600	.....	.....	.....	
Gantt	17,700	.....	.....	.....	
Bayou Rouge	2,000	.....	2,000	.....	Repairs necessary to secure a costly embankment.
Crawford	10,000	.....	.....	.....	
Mrs. Anderson	24,700	.....	.....	.....	
Abbott	12,100	.....	.....	.....	
Hartmans	15,900	.....	.....	.....	
Mrs. Dobine	15,900	.....	.....	.....	
Total Atchafalaya, right bank	436,700	.....	122,600	.....	

RECAPITULATION.

DESIGNATION.	PERMANENT.		REDUCED.	
	Cub. yds	Lumber	Cub. yds	Lumber
Pointe Coupee	365,400	.....	268,100	.....
West Baton Rouge	347,400	10,700	143,000	9,000
Iberville	204,600	37,000	83,700	14,000
Ascension	91,700	24,000	42,700	.....
St. James	143,600	15,000	70,000	15,800
St. John	12,700	40,000	2,000	15,000
St. Charles	30,900	.....	16,400	.....
Jefferson	24,700	.....	24,700	.....
Orleans	21,400	.....	.....	.....
Plaquemines	4,400	.....	.....	.....
Atchafalaya, left bank	462,900	8,000	69,800	.....
Atchafalaya, right bank	436,700	.....	122,600	.....
Grand total for Mississippi and Atchafalaya rivers	2,146,700	134,700	843,000	53,800

BY DISTRICTS.

DESIGNATION.	PERMANENT.		REDUCED.	
	Cub. yds	Lumber	Cub. yds	Lumber
Mississippi river, right bank	1,246,800	126,700	650,600	53,800
Atchafalaya river, left bank	462,900	8,000	69,800	.....
Total Second District	1,709,700	134,700	720,400	53,800
Total Third District (Atchafalaya, right bank)	436,700	.....	122,600	.....
	2,146,400	134,700	843,000	53,800

JOHN V. VAN PELT, *Engineer Second District.*

Since the report of August first was submitted, Mr. W rotnowski, engineer of the Third District, has taken charge of the right bank of the Atchafalaya, and I shall therefore confine myself to estimates of the Mississippi, right bank, and Atchafalaya, left bank.

After the regular meeting of the Board in September, I made a re-examination of the right bank of the Mississippi from Red River Landing to New Orleans, for the purpose of a special report upon the actual openings and recent caves, and submitted the following tabular statement:

Estimate of work necessary to close actual openings, October 5, 1870.

Name of Levee.	Permanent cubic yards.	Temporary cubic yards.
Red River Landing	60,000	60,000
Grand Levee, $500 to $1000 for repairs		
Point Manoir	49,000	49,000
Brady	59,000	11,000
Brusle Landing	4,500	4,500
Allain	16,000	10,000
Woods and Herbert combined	29,000	29,000
Lawes and Stone combined	68,000	68,000
Lacroix	5,000	5,000
Mrs. J. B. Labranche	12,000	3,000
Company Canal	36,000	6,000
Totals	338,500	245,500
If this estimate must be further reduced strike out the Point Manoir levee		49,000
Least amount possible for an ordinary water		196,500

JOHN V. VAN PELT,
Engineer Second District.

Upon the basis of these reports, the following adjudications were made by the board October 8, 1870:

Adjudications for the Second District.

NAME OF LEVEE.	PARISH.	Cubic Yards.
Red River Landing	Pointe Coupee	60,000
Grand Levee	Pointe Coupee	87,000
Brady	West Baton Rouge	59,000
Brusle Landing	West Baton Rouge	4,500
Allain	West Baton Rouge	16,000
Herbert	Iberville	29,000
Lawes and Stone	Iberville	68,000
Point Houmas (or Lacroix)	Ascension	5,000
Labranche	St. Charles	12,000
Company Canal	Jefferson	63,000
Total		403,500

Of these works, Red River Landing, Grand Levee and Company Canal have been completed; Brady, Hebert and Lawes and Stone partially completed; of Brusle Landing, Allain, Lacroix and Labranche, the contracts were annulled.

The break at Brusle Landing is a small one, but will cause a disastrous crevasse, if neglected. No steps have yet been taken towards closing it.

At Allain's the river made new encroachments, after my October report, and the least permanent line I can now locate, is 5,900 feet long with 41,000 cubic yards. It would be better to extend it half a mile farther, making it 8,500 feet long with 61,000 cubic yards. Protection levees can be made with 10,000 cubic yards, but they would give only doubtful security.

At Lacroix, near Point Houmas, the planters hearing that the funds of the board were exhausted, are closing that gap at once. I visited their work on the fifteenth instant. The cave had enlarged since my October estimate, and the new levee is of larger dimensions than I should have given, but it is a substantial and effective work.

The opening at Labranche, so far as I know, has not been closed. I notified the manager of the plantation, by letter, on December 17, that the contract for the work had been annulled, and I have not since been able to visit it.

The following table exhibits the present and total estimates of works commenced this year:

NAME OF LEVEE	Estimates as adjudicated	Total estimates, as located.	Main levees as received.	Protection levees.	Present final estimates.	Amount required to complete.	Total when completed.
Red River Landing	60,000	55,348 14	55,348 14	.....	55,348 14	.....	55,348 14
Grand Levee	87,000	98,286 64	98,286 64	.....	98,286 64	.....	98,286 64
Brady	59,000	60,705 33	44,233 34	4,503 97	48,737 31	16,471 99	65,209 30
Hebert	29,000	35,260 45	25,904 90	4,707 64	30,612 54	9,355 55	39,968 09
Lawes & Stone	68,000	75,665 15	47,080 01	12,198 18	59,278 19	28,585 14	87,863 33
Company Canal	63,000	37,125 70	37,125 70	.....	37,125 70	.....	37,125 70
Totals	366,000	362,391 41	307,978 73	21,409 79	329,388 52	54,412 68	383,801 20

Estimates for the Remainder of the Present Season, 1870-71.

NAME OF LEVEE.	PARISH,	Permanent cubic yards.	Temporary cubic yards.
Cooley	Pointe Coupée	11,600	11,60
Colomb	Pointe Coupée	10,000	10,00
Pointe Manoir	W. Baton Rouge	10,000	10,00
Brusle Landing	W. Baton Rouge	3,000	3,00
Allain	W. Baton Rouge	61,000	10,00
Colonel Butler's	Iberville	18,000	18,00
Doctor Stone	Iberville	30,100	30,1
Lacroix	Ascension	17,500	17,5
Labranche	St. Charles	12,000	12,0
Orleans Plantation	Orleans	21,500	21,5
Contingencies during high water		50,000	50,0
Total immediately necessary for 1870-71		244,700	193,7

Estimates for 1871 *and* 1872.

NAME OF LEVEE.	PARISH.	Permanent Cubic Yards.	Temporary Cubic Yards.
To complete unfinished works....	....	54,300	54,300
Levees adjoining Red river landing.	Pointe Coupee.	40,000	
New Texas.....	Pointe Coupee.	92,000	11,000
Levees adjoining Grand Levee....	Pointe Coupee.	25,000	
Point Manoir.....	W Baton Rouge	39,000	
Lobdell & Mahier.....	W Baton Rouge	38,600	38,600
Chinn & Robertson.....	W Baton Rouge	4,000	4,000
Lefevre.....	W Baton Rouge	63,800	
Dr. Hall.....	Iberville.....	16,400	
Landry	Ascension.....	15,100	15,100
Allen Thomas.....	Ascension.....	15,500	
Gaudet	Ascension.....	23,600	
Petteschaux	Ascension.....	13,100	13,100
Arcenaux	St. James.....	3,300	
Cantrelle.....	St. James.....	47,000	
Delogny	St. James.....	49,300	
Burnside.....	St. James.....	9,200	
Magnolia	St. James.....	19,700	19,700
Parish of St. Charles.....	St. Charles.....	57,000	57,000
Contingencies during high water..	.....	50,000	50,000
Atchafalaya, left bank.....	Pointe Coupee.	100,000	30,000
Total required for 1871 and 1872	....	775,900	292,800

My examination of the coast of St. Charles has not been as thorough as I wished, and I have been informed of weak points not noted by me. I therefore put the estimate for that parish in round numbers, without attempting any details.

The estimates for Atchafalaya in the permanent column contemplate the completion of the line from Red River Landing down to Cypress Point, a distance of twenty-four miles. The estimates for temporary works are sufficient only to secure Marine and Stark's bayous.

Estimates for 1872 *and* 1873.

Items.	Cubic Yards.
Remainder of August estimates on Mississippi river.....	330,900
Remainder of August estimates on Atchafalaya river....	362,900
Contingencies during high water.....	50,000
Total required for 1872 and 1873.....	743,800

Recapitulation.

Items.	Permanent Cubic Yards.	Temporary Cubic Yards.
Work of 1870 and 1871 already completed..	329,400	
Estimate for remainder of 1870 and 1871...	244,700	193,700
Estimate for 1871 and 1872.....	775,900	292,800
Estimate for 1872 and 1873.....	743,800	
Total permanent work for three years.....	2,093,800	
Total, as estimated in August.....	1,709,700	
Difference of estimates.....	384,100	

I ask leave to submit the following table to explain this large difference:

Items of difference.	Cubic Yards.
Cost of protection levees—1870 and 1871	21,400
Error in my estimates for works already completed	12,400
Enlarged estimate of Allain levee	45,000
Enlarged estimate of Stone's levee	5,500
Enlarged estimate of Lacroix levee	17,500
Enlarged estimate of Labranche	7,900
Enlarged estimate of parish of St. Charles	23,200
Allowance for contingencies	150,000
Col. Butler's levee, new work	18,000
Orleans levee, new work	21,500
Allen Thomas levee, new work	15,500
Work on levees adjoining Red river and Grand levees	52,000
Gross amount	389,900
Deduct some small items reported before, but now expunged	5,800
Difference of former and present estimates	384,100

Most of the enlarged estimates are caused by new abrasions and changes of the bank, which have been frequent this year. I can not anticipate all these changes, but each year's observations add to my knowledge of localities. These preliminary estimates do not profess mathematical accuracy, and the results sometimes prove them erroneous as to details, but in the aggregate amounts they may be relied upon as correct.

The total amount of work estimated for the three years under consideration, including that already completed this year, is 2,093,800 cubic yards or, in round numbers, 2,100,000 cubic yards—an average of 700,000 a year. The entire length of levee built with this 2,100,000 cubic yards will be fifty-two miles. The length of levee completed from November, 1868, to July, 1870, was nearly twenty miles. By the summer of 1873 then, we shall have seventy-two miles of new levee built since 1868, and calculated to last twenty-five years. There will still be two hundred and fifty miles of old levee, requiring gradual renewal. We shall have at least twenty-three years to devote to it, before it will be necessary to rebuild any of our new works. Two hundred and fifty miles in twenty-three years, will be eleven miles per annum, which at the average height of eight feet,

will amount to 475,000 cubic yards. In my report of last year, I put it in round numbers at 500,000 cubic yards per annum.

In these estimates, I have not included the levees of Bayou Lafourche, nearly one hundred and fifty miles long. These levees are not subject to washing nor caving. They only need renewal from occasional crevasses and ordinary wear. The principal cause of crevasses above Lockport is crawfish, and below, the insufficient height of the levees. Any slight repairs that may be needed will be covered by the estimates for contingencies. I have not been able to make a careful inspection of these levees, but shall give the subject special attention during the next season.

I respectfully call your attention to the subject of roads, and back drainage; they are much neglected in some localities. In the upper part of West Baton Rouge, the only road, for miles, is on the crown of a levee only six or eight feet wide.

In conclusion, I sum up the amount of work required for the Second District in addition to that already completed.

YEARS.	Permanent Cubic Yds.	Temporary Cubic Yds.	Permanent Cubic Yds.	Temporary Cubic Yds.
Requiring immediate attenton 1870-71			244,700	193,700
Mississippi river for 1871-72.....	675,900	262,800		
Atchafalaya river for 1871-72.....	100,000	30,000	775,900	292,800
Mississippi river for 1872-73.....	380,900			
Atchafalaya river for 1872-73.....	362,900		743,800	
Total to summer of 1873.....			1,764,400	

After 1873, it will require 500,000 cubic yards per annum for new levees, besides the cost of maintaining and guarding.

I have submitted columns of permanent, and temporary estimates, *temporary*, meaning patches, that may sometimes be used to save present outlay. These patches do not relieve us from the necessity of building the permanent works they only postpone the expense, and advance us not a step in the establishment of a secure line. I therefore respectfully urge that all appropriations should be for substantial improvements.

Very respectfully

JOHN V. VAN PELT,
Engineer Second District.

A true copy:
R. D. MITCHELL, Secretary.

THIRD DISTRICT.

BOARD OF PUBLIC WORKS, STATE OF LOUISIANA,
Engineer's Office Third District,
New Orleans, December 31, 1870.

M. Jeff. Thompson, Chief Engineer Board of Public Works:

ERAL: I have the honor to report a statement of operations my district since about the first of October, when I assumed

works just completed are of vast importance. A net of running out of the Atchafalaya westwardly, annually over- a country abounding in rich soil, thickly settled, and one of st sections of our State. The largest of these bayous have losed, and although the protection is not thorough, yet it is sting much good as the high water advances.

area protected by these works, or the benefits derived can overestimated. I venture to state that next year the crops in ction will be more than doubled.

levees contracted for last year at Bayou Current with Llam- d Dockter, are nearly finished, and will form a substantial kment. Some extra work has been added to their former con- hence the delay in completing the work.

ddition to the works in my district, I was instructed by the to examine some reported breaks on Red river, near the n plantation, which I found required immediate attention, ereupon reported to the Board, and was ordered to locate a ccordingly; the work is progressing rapidly, and bids well to pleted within a week or ten days.

works as let out and completed, and to be completed this , are as follows:

Levees.	Cubic Yards.
Turner's Bayou, different sections	144,305.01
Harvey's Bayou	52,823.00
Garrett's	11,832.25
Bayou Rouge	14,300.70
Crawford's, different sections	53,498.00
FOURTH DISTRICT.	
Johnson's levee on Red river, two sections	38,360.00
Total let out this last season and built	315,118.96
Bayou Current, when completed, will amount to	107,696.50
Total under my direction	422,815.46

The line of levees completed this season is continuous, that is —not having a sufficient quota of cubic yards to protect the whole coast of the Atchafalaya—I adopted the policy of doing as much good with what was allotted to my district as possible. I therefore confined myself to closing up a certain section of the coast where the main bayous were which discharged a large quantity of water into the back country and did a great deal of damage. To show the importance of the work done, it is only necessary to state the quantity of water that passed through these bayous, viz:

	Square feet.
Turner's Bayou section	10,250
Harvey's Bayou section	7,500
Current Bayou section	9,500
Three other smaller bayous	8,400
	35,650

which, at ordinary current of two and a half feet per second, is 89,125 cubic feet of water per second—prevented from overflowing the back country. Between these bayous the "breaks" have all been closed, and a distance of seventeen miles, (from Turner's Bayou to Captain Burton's), is at present, comparatively speaking, safe and secure.

There yet remains to be built for next season, as follows:

NAME OF LEVEE.	Cubic yards.
Stribbling's, etc., on Bayou De Glaize	25,500
Simmsport, on Atchafalaya	24,000
Harmanson, on Atchafalaya	24,500
Callihan's	15,300
Kirk's	5,000
White's	7,500
Yellow Bayou	8,000
Winn	35,000
Stockett's Bayou	7,000
Heatherwick's	22,000
Cason's	45,000
Rodgers'	22,500
Nelson	3,500
Gordon & Lindsey's	3,500
Bill Davis	3,000
Anderson's	25,000
Abbott's	12,500
Hartman's	16,000
Dobin's	16,000
Total cubic yards proposed	320,800

Say, 321,000 cubic yards more will complete the right bank of the Atchafalaya to some permanency for at least fifteen years. It must be remembered that all the above mentioned levees are, with one or two exceptions, opposite actual breaks, where no levees exist. The importance and necessity of there construction is therefore more apparent.

In the above estimate, nothing is allowed for raising the line of levees, when both banks will be closed. In that event, the whole line on the right bank will have to be raised to at least, on an average of five feet above present high water mark.

I have adopted the safe policy of locating the levees at a good distance from the bank, and no reason can be brought forth why they should not stand, provided there is no general overflow, and the probable expense in keeping up the levees afterwards will be trifling.

The high water of different years has encroached upon the Atchafalaya banks very much. It had a full sway since the war. More and more every year has caved and washed in, as no improvement for its protection was attempted. The Atchafalaya now has attained a considerable size, from caves and washings. I will not attempt to

give its section, as I have not made any instrumental examinations, but it would differ widely from Humphrey's and Abbott's reports, if one would judge from the amount of caving.

We have in this district no less than about three hundred and thirty-five miles of river bank, subject to being leveed, divided as follows: Red river, one hundred and sixty miles; Atchafalaya, seventy miles; Bayou de Glaize, twenty-five miles; Bayou Courtableau, eighty miles. These figures are rather suggestive, and a good deal below the actual, but will serve to show the magnitude and extent of improvements for levees alone. The extent of territory in this district is so large, and my time has been so limited, that I was not permitted to make as thorough surveys as needed. Many improvements are necessary, some of more or less importance, but of so varied a character that I can not dwell on them until some more convenient period.

Among these improvements, I will only mention those of more importance and enumerate them in their order.

Lake Tasse lying directly in the rear of St. Martinsville, on the west side of Bayou Teche, has always been a drag on the planters bordering and in the environs of the lake. It is a basin with no outlet, and during rains becomes full and overflows plantations on Bayou Teche and Vermilion. I can not now approximate the area overflowed, but I venture to state the result would be surprising.

The proper location for draining this lake seems to be at the lower end, to cut a canal from lake to bayou, about six hundred yards in length. On this line there already exists a canal, cut by a planter in former years, it was used as a water power to drive a sugar mill on the bank of the Teche, the lake acting as a feeder and the canal the mill race, which discharged its water in Bayou Teche. This canal might be made to drain the lake about two feet and yet leave it nine feet deep, while, at the same time, it would drain the extensive marsh around the lake. This canal, I understand, is now abandoned as a motive power, it might probable be made available for this purpose, but further instrumental examination will be necessary before this is decided.

At any rate, to demonstrate the feasibility of draining the same, I will take notes from the engineer's report of former date.

The elevation of the bottom of Bayou Teche is..... 70.50 feet.
The elevation of the bottom of Lake Tasse is..... 79.50 feet.
So that the bottom of the latter is nine feet higher than the bottom of the former, and the elevation of the mean surface of water in the Teche is..... 77.75 feet.
And the surface water of Lake Tasse is..... 90.86 feet.

Therefore the surface level of Lake Tasse is 13.11 feet higher than the mean level of Bayou Teche, which shows that the lake can partially or thoroughly be drained.

The next improvement we come to, is the proposed drainage of "Grand Marais" lying west of the Teche below New Iberia.

The area comprised in the Grand Marais is about six thousand acres of rich bottom land formed from accumulated decayed vegetation. It has never been tilled on account of the difficulty of draining the same. After heavy rains water stands from one to five feet deep, and only disappears by a few insignificant coulees and evaporation. Most of this marais lies contiguous to Bayou Teche, within the forty arpents line directly in the rear of fine sugar fields, which suffer very much from back water in the marais, and drowns the crops of some twenty-five sugar plantations. The tilled lands that are subject to overflow—I have estimated, from United States surveys etc., to be about fifteen thousand acres—You will readily perceive the loss sustained by these planters, when 15,000 acres may be equaled to 15,000 hogsheads of sugar, and to compare the trifling cost of redeeming these lands with a constant destruction of crops, it is indeed surprising that this improvement has not ere this been accomplished.

The most feasible way of accomplishing the object above mentioned is simply to cut a canal from the lower end of the Marais, on or about the line betwesn the plantations formerly owned by A. C. Weeks and Mrs. Amelia Judice to Bayou Teche, a distance of 7300 feet. On this line there is a fall of 9 8-10 feet to Bayou Teche. A canal of twenty feet bottom, with $1\frac{1}{2}$ to 1 slope, would contain 50,000 cubic yards. This canal would be sufficient to drain the Marais in such a manner, that it would not only drain the adjacent lands of the Marais, but also render the Marais lands itself susceptible of high culture, and produce double the amount of crops raised on the bayou. Thus will the Marais, now lying waste, be redeemed, and become highly productive, while the State will be

fully compensated in her expenditure by the increased valuation of property, which now does not bring a farthing of revenue.

We next come to the improvement necessary in and about Franklin. Here I have not been able to collect necessary items to show this contemplated improvement in its proper light. I will only quote from a petition from planters, praying fervently for the improvement:

"That there is a large body of swamp and high marsh land lying back of Bayou Teche, in the neighborhood of Franklin; that, by constructing a canal through the swamp and intervening marsh between the swamp and the land toward the sea marsh, a large and valuable tract of swamp and high marsh land would be brought into market and become a source of revenue to the State."

"Incidental to bringing these lands into market, the opening of this canal to the bayous in the sea marsh, an extensive section would be drained on the Teche, for an extent of fifteen or twenty miles, and secured from overflow, which now, after heavy rains, is some times four feet under water."

While on the Teche, in August last, it was suggested to me to make some examinations relative to protecting the Teche country from inundation from the Mississippi river. Acting upon this suggestion, I selected a location which seemed best adapted for that purpose. By glancing over the map of our State, you will readily perceive the tortuous course of Bayou Teche. By running protection levees across these bends, on the Grand Lake side, this section would readily be protected. I selected the bend opposite Franklin, and ran a line of levels across the bend, two miles above Centerville. I found this levee would have to be four thousand six hundred feet in length, by a section of two and a half to one slope, six feet crown, which would contain 44,000 cubic yards, and would protect from overflow, as per United States surveys, etc., about 8500 acres of sugar land. This seems feasible, and I venture to recommend its construction, as, comparing the cost of this improvement to the protection afforded, it is trifling. The only difficulty to be encountered is a passage for drainage after the levee is built, which could only be remedied by flood gates in the levee, at the expense of the planters.

Another improvement much needed is the cutting of a canal for navigation from Grand Lake to Bayou Teche, at or near Charenton or Indian Village. A cut-off of a little over one mile would bring

into close proximity to the Teche the splendid timber country of Grand Lake, and where forty-five miles of dangerous and difficult navigation through Grand Lake would be obviated. The difference of level between Bayou Teche and Grand Lake, at high tides, varies somewhat, but, on an average, the lake is nearly two inches higher; this would cause a slight influx in the Teche, which is very much needed. The canal would contain about 115,000 cubic yards, and be of incalculable benefit either to steamboatmen, or to the Teche planters for getting out timber.

Another great impediment to navigation is the formation of bars where Bayon Courtableaux enters the Atchafalaya. The difficulty is so great that boats have to unload and reship on lighters, thereby losing a great deal of time and expense. I would recommend an instrumental examination and ascertain if the impediment can not be removed.

I need not mention anything relating to the Teche and Vermilion improvement, as you have had charge of the same. I feel grateful to you, General, for relieving me of that duty.

I might mention other improvements much needed here and there, but I fear I am trespassing on your time—I have already shown that many things are needed. During our leisure season it is my intention to make thorough surveys through the district—I have commenced a map of this district on a pretty large scale and have gone as far as notes have permitted me—next season I hope to be able to complete it.

One more subject I wish to mention. Planters on the Atchafalaya and Red rivers have built levees on their places to protect themselves and others; they have gone to an expense which, in my opinion, the State ought to have borne—some of these levees are well located and have done a deal of good. I see no reason why they should not be compensated for their outlay I have had no time to measure these levees, but will only mention a few of the claimants who have spoken to me:

On the Atchafalaya.	Yards.
Captain Gordon—three sections—about	8,000
Tom Harmanson about	5,000
Mr. Stribbling, on Bayou DeGlaize, about	5,000
Mr. C. Moreaux, on Red River, near Barbin's Landing	6,500
	24,500

I only mention the above that you may have cognizance of the same, and make such recommendation as seems best to you.

I trust, General, that you will coincide with me in recommending most of the improvements proposed above, or such as in your judgment will seem best for the interest of the State and the public at large.

It is indeed a pleasure to contemplate the progress of improvements in this district. The line of levees inaugurated this season on the Atchafalaya augurs well for that country. It cheers up and inspires the desponding planter to activity, and bids fair to become as of yore, one of the finest sections of our State. It only remains for the herein mentioned and proposed works to be made, and I trust the Board will act liberally with this district in case the Legislature makes an appropriation.

In conclusion, General, I must not omit to thank you for the courtesy you have shown me during our intercourse. You have ever seconded my wishes and views, for which I feel grateful.

Respectfully submitted,

A. F. WROTNOWSKI,
Engineer Third District.

A true copy.

R. D. MITCHELL, Secretary.

FOURTH DISTRICT.

ENGINEER'S OFFICE FOURTH DISTRICT,
Board of Public Works,
New Orleans, La., December 31, 1870.

General M. Jeff Thompson, Chief Engineer:

DEAR SIR—Allow me to submit to you the following report of the levees just completed, in part, and entire:

The very important levee at Chemanaho, in this division, has been completed, and the benefits will be felt in the entire section, from the Campte Hill to Bayou Saline, and from the river to Black and Clear lakes; the three breaks in this line of levees extended nearly two miles in the aggregate; the new levees built have been located at a safe distance from the bank, and I think no more breaks likely to occur for two or three years, yet.

The levee at Willow Chute, known as Hurricane Bluff Levee, has been only extended from the Gold Point Levee around the front of Center and Butler's plantations to the mouth of Willow Chute, across the chute to the island formed by the cut-off, across the point of this island, the bed of the old river and extending two thousand feet along the river bank. Whole length of the work completed is twelve thousand four hundred feet.

I desire to call your attention to the necessity of immediately completing this levee, unless this be done, before another flood, the large work at Willow Chute and Old river will be seriously injured, and the benefit of the work greatly reduced. The important work included in the Hurricane Bluff Levee, that has not yet been done, is to strengthen Gold Point Levee, by adding three feet to the elevation, and corresponding additions to the base;—to strengthen the Vance Levee, opposite the Buckhall Plantation, at the old crevasse;—to strengthen Benoist Bayou Levee, from the banks, both wings;—to strengthen the crevasse below Beams' gin house, when this is done there need be no fears entertained for the safety of crops on the west side of Red river above Shreveport.

I desire to call your attention to the great importance of repairing the break in the Pascagoula levee, across the bayou of that name. Should Red river rise to its usual height the coming spring, the planting interests will be utterly destroyed. The body of water flowing through this outlet is constantly increasing by washing out the channel in its depth and width, and the flow of water inundates the whole country to Bayou Wincey; in connection with this is Bayou Lachute, at Mrs. Powel's plantation, and Honey Bayou to be leveed at its junction with Bull Bayou. When these three levees are built, all the rich alluvial land between Pascagoula Bayou, Bayou Wincey, Prairie river and Red river, will be comparatively secure. I have only one other point to recommend a levee to be constructed in this report, that is Bayou Nicola on the west side of the river near Couchate Point; this should be done to reclaim the large body of now useless swamp lands, and to protect the cultivated farms on that side of the river subject to annual overflows by its waters.

The following table will show the amount of earth embankments in levees I propose:

		Cubic yards.
Gold Point	under contract	37,000
Thomas Woodland		7,000
Buckhall	Hurricane Bluff	7,000
Bennoist Bayou		3,500
Beams		8,000
Pascagoula, under contract		14,500
Honey Bayou, under contract		20,000
Bayou Lachute, not contracted for		6,000
Bayou Nicola, not contracted for		18,000
		121,000

I think the levees above enumerated are all that will be needed, until a system of great magnitude is adopted to confine the river entirely within its banks; a work not to be attempted, without the command of millions of dollars.

I now approach a feature in the Fourth District, very important in its character, namely, the lakes and bayous.

The great number of lakes on the east side of the river, covering more than one hundred and fifty square miles, might be drained by opening channels, through which the waters would pass more freely than they now can through timber-obstructed beds of shallow lakes.

I will only mention one instance, that, I have no doubt, would be a success. This would be to open an outlet from Soda Lake into Cross Lake, through Blind Bayou, from whence it would flow back into the river through Cross Bayou. Cross Lake, surrounded by high bluffs, would be the reservoir, retaining a large body of this water, and permit it to reach the main channel of Red river at more leisure than it now does through Twelve-Mile Bayou. The further benefit of this will be to draw the floods of water from the lands on the river front, above Twelve-Mile Bayou, and reclaim many thousands of acres of now valueless swamp lands. It is urged, as an objection to this, that it will endanger the lands from Shreveport down to Tones Bayou. I do not agree with this view of it. The waters from all these lakes pass through this channel until they are distributed through the various bayous between Shreveport and Grand Ecore, where they are again united. The twenty bayous, of which Mack's Bayou is the largest, on the west side of the river, returns the water through Loggy Bayou and Couchata Bayou. On the east side is Bayou Pierre, Tone's Bayou (directed to be leveed), Pascagoula Bayou, and others of lesser importance—all return their borrowed waters through Bayou Wincey and the lower outlet of Bayou Pierre, from whence they are not separated until Cane river demands her allowance.

I suggest the propriety of making a complete instrumental survey of the many bayous on the west side of the river below Shreeve's Cut-off, emptying into Red Chute Lake, Bayou Red Chute and Swan Lake, Platt river, Lake Bisteneau, and again return to the mother river through Loggy bayou. I think that by assisting the waters, by cutting the timber through the low, swampy lands bordering one of these bayous, and through the lakes, and digging a ditch through an intervening ridge three quarters of a mile in length, the river would make a cut-off about ten miles in length, shortening the river between these points about sixty miles, giving much better navigation than now exists. One desirable end of this cut-off will be to retain all the water now coursing through Jones and Pascagoula bayous, in the main channel of the river; another will be to draw the water that escapes from the cramped up channel below Tones Bayou over the banks at every high water, sending devastation in its course, to the low and useless lands along these lakes and bayous.

I wish to call your attention to the condition of navigation through Bayou Pierre Lake. This can be improved at small expense to the State, so that steamers of twelve or fifteen hundred bales of cotton capacity may easily and safely navigate to Edward's Landing.

The swamp between Bayou Pierre and Red river becomes impassable during the winter and spring months—the seasons most valuable to the planter for shipping his crop and receiving his supplies. The planter is then compelled to haul his produce taken to Shreveport or Grand Ecore, either point distant from Mansfield forty-five miles. By cutting the timber and removing the stumps for a space of seventy-five yards in width through the timbered part of this lake, good navigation would be provided for eight months in the year, and this will occur when the swamps are impassable.

Under instructions from the Acting President of the board, in June last I made a survey of Bayou Bartholemew, from its junction with the Ouachita river to the State line. This most important tributary to the Ouachita, permeating as it does the unequaled cotton lands of North Louisiana, and navigable through two hundred miles of the State of Arkansas, has been permitted to become almost useless to navigation by drifts of timber, sunken logs, snags, etc.; the growth of willow along the banks have reached the magnitude of forest trees, and obtrude their jagged limbs, half across the stream. During the past ten years several steamboats have been sunk in the bayou, and the removal of the wrecks, is a work involving heavy expense. Twenty thousand bales of cotton is a moderate estimate of the amount of cotton shipped on this bayou when safe for navigation. I thought it ought to be done thoroughly, if done at all, and therefore made an estimate of the cost of a complete cleaning out of all obstruction, which, if done, will in my opinion be of immense advantage to the commercial interest of New Orleans, and will greatly increase the value of property on said bayou and adjacent thereto, which in turn will benefit the State through its increased valuation for taxation. Thus repaying to the State in a few years, the amount which should be expended for the work.

I leave the several suggestions and recommendations brought to your notice herein, to the wisdom of yourself and the board, to consider how far they ought to be carried out.

Most respectfully yours, etc.,

W. C. MELVIN,
Engineer Fourth Levee District.

A true copy: R. D. MITCHELL, Secretary.

FIFTH DISTRICT.

STATE OF LOUISIANA, BOARD OF PUBLIC WORKS,
Engineer's Office, Fifth District, December 31, 1870.

General M. Jeff. Thompson, Chief Engineer Board of Public Works, New Orleans, Louisiana:

GENERAL—The levees let by the Board of Public Works to be constructed in the Fifth District being now nearly complete, I have the honor to submit the following report of the operations conducted under my supervision, together with recommendations for other additional works which I consider essential to be put up at as early a day as practicable.

The levees constructed in the Fifth District, together with the number of cubic yards, set opposite to each, respectively, are as follows, viz:

	Cubic yards.
The Longwood levee	51,391.30
The Stamboul levee	90,441.17
The Goodrich levee	62,728.91
The Bell levee	24,333.33
The Milliken's Bend levee	54,531.00
The Hard Times levee	48,154.96

All of these works have been executed in a good and substantial style, and form, in connection with a levee now under progress of construction at the Green Plantation, about twenty miles below Vidalia, a continuous and connected line of works from the Ashton crevasse to the Red river cut-off, except Diamond Bend crevasse, and which affords temporary, but far from permanent protection to the entire planting interest on the river front. The best locations and distribution of the works were made that could be done, after a careful reconnoissance, and with the very limited means at the disposition of the Board of Public Works. In consequence of this fact, all of these works have necessarily been contracted in their proportions much below what they should have been, both in their lengths and their sections. There are, besides the immediate localities pro-

tected by these works, not only many very weak points, but long lines which are in dangerous proximity to the river, and which will require, during the present approaching high water season, constant vigilance, and means at command for prompt action to secure the country from the ruinous effects of crevasses and overflow.

I will now endeavor to enumerate the most important of these, considered under the existing status of things, viz: with the Ashton crevassse open, and fifteen miles of Arkansas and seven of Mississippi front levee down, and with no present prospect of the same being closed.

First—The work on Longwood Levee should be extended and continued above by, say three thousand feet of eight feet levee, containing about 25,000 cubic yards, and below, covering a very weak place and rapidly caving bank along the front of the Berry Place, four thousand feet of eight feet levee, containing 35,000 cubic yards, will be necessary, making a total of this work of 60,000 cubic yards.

Second—A levee extending from the point known as the Hagamann crevassee, about one and a half miles below Lake Providence, and connecting with the upper angle of the recently built levee below Henry Deason's quarters, containing say five thousand feet of nine feet levee, or 50,000 cubic yards, should be also built, as the present levee is threatened along this entire line.

Third—The number of cubic yards necessary to complete the present projected line of the Stamboul Levee, below the Transylvania store, will not be less than 50,000 cubic yards.

Fourth—The number of cubic yards necessary to complete the present projected line of work on the Goodrich and Wilton Levees will not be less than 50,000.

Fifth—From a point just below the Bell House there should be a continuous line of new levee to connect with the small work just built to cover the actual break above Mrs. Newman's. This line is over one mile long, and throughout its entire length the river is within an average of fifty feet of the old levee, and the bank even now caving badly in many places. The work necessary to make this line secure will contain 60,000 or 70,000 cubic yards.

Sixth—The next place requiring immediate attention is at the angle of the levee just below what is known as the Biggs Place, three miles below Delta. Here is almost an actual hole, which

could be closed temporarily with three or four thousand cubic yards, or permanent by completing the new work already partially built there by the addition of, say ten thousand cubic yards.

Seventh—The next point below this is at the Wilson house, and the bend here, known as the Wilson Bend, from the Bland Place, for several miles below, is, in my opinion, decidedly the worst caving bank in the Fifth District. Near the house the river is close to the levee, and a break at no distant day is imminent. The river is rapidly encroaching upon the land, and is at no great distance from the long line of new levee built in 1869 and 1870. An entirely new work will be necessary here at no distant day. But at present a "run-around," amounting to thirty-five or forty thousand cubic yards, would give temporary security and protection.

Eighth—The next work I recommend, and consider of great importance, is to close the Kimball's Bayou by a levee across its mouth, and running up and down along the Cocodrie, which work will protect from overflow from the swamp the plantations along the front for many miles, in the event of coincident floods from Bayous Tensas and Mason and the Red River. This work will contain, say fifty thousand cubic yards.

Ninth—A piece of work just below Vidalia, containing about five thousand cubic yards, one at the Arnuldia Place of about three thousand, and another at the Whitehall of three thousand feet long, and containing from twenty-five to thirty thousand cubic yards—the whole amounting to say, thirty-five thousand cubic yards, complete the list of the works, I consider essential to build in the Fifth District, as soon as circumstances will permit.

The whole amount of work above enumerated is three hundred and eighty-five thousand (385,000) cubic yards.

I recommend no works below the Red River Cut-off or Union Point, inasmuch as the propriety and importance of reclaiming the lands below this is contingent upon the co-operation of the State of Arkansas; the closing of the Ashton crevasse; the location and building of the Diamond Island Bend Levee; the leveeing of the Bayous Mason and Tensas; and, in fact, the carrying out of the complete levee system, involving the raising of the whole front line to proper grade, as recommended by the ablest authorities on the subject, and which has been so repeatedly and ably discussed by our present Chief Engineer.

But, as I suggested in the beginning of this report, I deem it unnecessary and out of place to enter into a consideration of this subject at present, and make my recommendations upon a knowledge of the absolute necessities of my district, under the existing status of things.

Very respectfully, your obedient servant,

T. A. WASHINGTON,
Engineer Fifth District.

A true copy:
R. D. MITCHELL, Secretary.

CHIEF ENGINEER'S REPORT.

ENGINEER'S OFFICE BOARD OF PUBLIC WORKS,
New Orleans, Louisiana, December 31, 1870.

General Martin Flood, President Board of Public Works:

GENERAL: I hereby report the operations in the Engineer Department of the Board of Public Works during the past year.

Since my annual published report of December 31, 1869, there has been several important changes in this department, Colonel A. F. Wrotnowski having been assigned to the Third District, William C. Melvin to the Fourth District and Colonel T. A. Washington to the Fifth District, thus with John V. Van Pelt in the Second District and myself in the First District, filling the engineer corps according to law.

Various special reports have been made during the year by the engineers, some direct to me, some to their respective commissioners and others to the board direct. My report to you on September 7, I desire to consider as part of this, and therefore I will not repeat the facts therein contained, except when necessary to explain matters now before me.

We had built up to September 7, during the season of 1869 and 1870, 3,206,236 cubic yards of levees; but when the Gipsey, Ormand and Lower Waterproof levees were finished, the amount reached 3,289,386 cubic yards, and an unsettled balance on Bayou Current is still due.

The levees built since September 7, on the new contracts now reach 1,335,000 cubic yards, and there is required 150,000 cubic yards to complete the works in progress (all of which will be done in a few days), and thus the aggregate of work done by contract, including the work of 1868, 6,230,000 cubic yards, to which must be added the works done by parishes and planters, which you have paid for out of the levee fund, of which I have no account. I regret exceedingly that the prices at which the works had to be let, was so far in excess of the original estimates, that much that should have

been accomplished, and much that I surely anticipated doing, has not been done, and consequently much dissatisfaction exists among those whose levees have been left unbuilt, and especially those injured by the Ashton crevasse. With the three millions of dollars I truly supposed that we could build nine millions of cubic yards of levees, which would have put the whole State in safety, but this has not been done, and the deficiency must yet be made up.

I beg to refer to my report to Captain S. W. Sawyer for the condition of the levees in the First District, Mr. John V. Van Pelt's report for those in the Second District, Colonel A. T. Wrotnowski's for those in the Third District, Mr. W. C. Melvin's for those in the Fourth District and Colonel T. A. Washington's for those in the Fifth District, all of which are herewith.

A recapitulation of the foregoing report shows that we still require 4,000,000 cubic yards to make the alluvial lands safe from overflow, and the Fifth District still needs the co-operation of the State of Arkansas.

Several of our large levees are threatened by caving banks, and must most earnestly ask you to invoke the Legislature to give the Board of Public Works the means and authority to attempt to check the encroachments of the river upon our costly levees, and to prevent the threatened cut-offs at Delta and Waterproof. The Kempe levee, in Tensas, that cost last year over $150,000, will scarcely last another season, and to rebuild it, on account of the low grounds behind it, will cost $250,000. Now, I believe that for $50,000 I can preserve it for many years, and develop a plan by which other caving banks can be protected, for I have constructed works that checked the encroachments of the Missouri river where it was nearly as deep as at Kempe's, and the current much swifter, and immense fields of ice, in rapid motion, to combat.

Several of the levees commenced this season have been stopped in an incomplete state, from the exhaustion of the funds, at command of the board, and several actual open holes still exist below Red river, and some provision must be made to close them, else the loss will be immense. The planters will close these openings if authorized by the board, and trust to the Legislature for appropriations to repay them, or the board can let the work on credit to contractors who will await the action of the Legislature for their pay.

Some of these points will scarcely admit of delay, and I pray that some action be taken in regard to them. This specially applies to the work at Dr. Stone's, in Iberville.

It affords me pleasure to state that the work done on Bayous Teche and Vermilion, under the supervision of the Board of Public Works, has far exceeded, in actual service, that performed on any similar work ever done in this State, but the Vermilion still needs another appropriation, as the work necessary to complete the improvement to the Pin Hook Bridge could not be performed for the amount appropriated.

His Excellency, the Governor, directed me to examine the Mississippi and Mexican Gulf Canal, and report the progress of the work to him. I did so on the twenty-third of April and on the sixteenth of June, and am glad to say that I found the work being pushed with a vigor that was commendable, and so reported. The most powerful dredgeboats and derricks in the Union are employed, and it is astonishing to see the amount of work performed by them. At an early day the canal will be near enough to the Mississippi river to commence business, and early next summer I hope to see the lock completed.

I was also called upon, as *ex officio* State Engineer, by the Honorable J. R. West, Administrator of Public Improvements of the city of New Orleans, to obey the joint resolution of the Legislature, No. 80, approved March 16, 1867, and establish the line between the parishes of Orleans and Jefferson, right bank. I performed this duty as well as possible under the circumstances, but I hope the Legislature will revise the old laws of 1812, in regard to this line, and also the lines between Orleans and Plaquemines, and Jefferson and Plaquemines, right bank, and make them suit the present condition of affairs, for the country had not been surveyed, and was sparsely settled at that time, and possibly a large portion of valuble land is now untaxed, because of the uncertainty of the parish in which they lie.

It may be foreign to my duty, but I would add that the railroads are favorably progressing; and also, as there is no engineer or architect who has special charge of the public buildings of the State, I will remark that the military academy, near Alexandria, has burned down, and that the ruins of the capitol, at Baton Rouge, still remain

as the fire left them, and may still be made available for future use. The grounds around the building and the shrubbery are being cared for.

The question was raised during the past summer, as to whether it was or was not the duty of the Board of Public Works to protect the rear of the city of New Orleans from the periodical overflow from Lake Pontchartrain; and on this subject I would remark that I think the object desired has been accomplished by the New Orleans, Mobile and Chattanooga Railroad, for their embankment is almost continuous to the Rigolets, and beyond to the high land in Mississippi, and the vast sheets of water that were blown from the Gulf over and across the salt marshes and prairies into the lake will now have to enter by the natural tidal waterways, and it is well known that the floods that came in in a few hours required as many days to retreat; and now it will take as many days to come in as it then took to pass out, if the railroad embankment will stand the swell from the Gulf; and therefore I anticipate no more great overflows from Lake Pontchartrain.

I must again advert to the manner in which the work of improving the Bayous Teche and Vermilion has been performed, and say that I believe that if the Legislature would in its wisdom place all such works in the hands of the Board of Public Works, and let them contract or employ labor, as in each separate instance may seem best, that the bayous can be opened, and the drainage canals dug, the levees protected, and all such work done at least fifty per cent., and in some instances, three hundred per cent. cheaper than the present inflated contract or special commissioner system. Before the war the State owned five dredge and snag boats, and one hundred and fifty slaves, whose duty it was to carry out the orders of the Legislature. Can the State be so poor of honest men that the same kind of labor can not be performed now by hired freemen, for as little, if not less, than the old *régime* in their experience and wisdom found it best to do. If we can be trusted at all, why not trust us fully?

There are many other subjects that I would be glad to bring to your attention, and through you, to the Legislature, but I will now simply ask that I may have authority to reprint the reports of the intelligent engineers of the past, or codify their reports for the use of our present people, that their great labors and scientific researches

and opinions may not be lost to this and succeeding generations, by being scattered through years of antiquated public documents. There is not one bayou or drainage canal in this State now proposed for patronage that has not been reported upon in days gone by, and a concentration of these reports would well repay the Legislature and the State for the cost of republishing them in some condensed style.

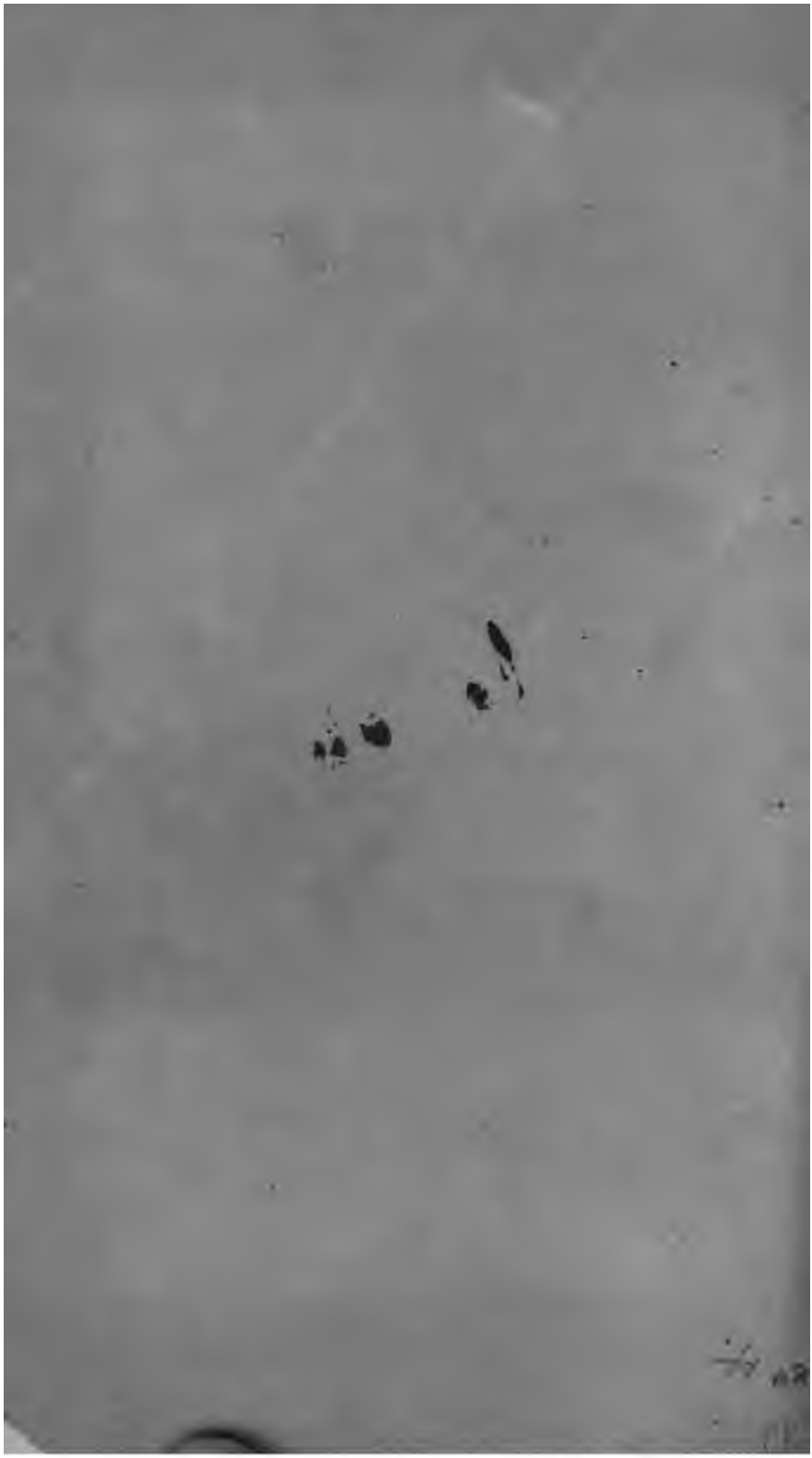
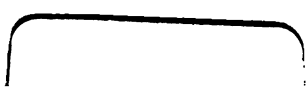
Hoping that the district engineers' reports and this recapitulation will present the condition of the levees in their true light,

I have the honor to be your obedient servant,

M. JEFF. THOMPSON,
Chief Engineer.

A true copy:

R. D. MITCHELL, Secretary.



NOV 1 9 1942